

Cape Comorin an International
Multidisciplinary Double-Blind Peer-reviewed
Research Journal

Special Issue,

Volume II Issue V

June 2020

ISSN: 2582-1962

COVID-19 PANDEMIC SPECIAL ISSUE

Dr Morve Roshan K.



Dr Morve Roshan K. (born 1990) obtained MA in English, and M. Phil PhD. in Comparative Literature. She is a **Postdoctoral Fellow of Southwest University, China**. She has received an “Honorary Research Associate” award at the Bangor University (United Kingdom). Her last employment was at Children’s University, India. She has published, **1** Special issue, **18** research papers, **3** chapters, **2** short stories, **1** interview, **2** newspaper articles, **6** poems, **4** books and **edited 74 Children’s Literature books**. Her interview has been published in the Bangladesh newspaper. She is an editorial Member of **15** journals and magazines. She has attended **28** international conferences, seminars and symposiums in many countries. She has completed **2 projects** and received national and international **9** travel grants funding. She has been working as Lecturer, Teacher, Tutor, Volunteer, multilingual Poetess, Editor, Writer, and Translator. She is a convener and coordinator of conferences. She has been on academic visits to Asia and the UK. Her area of interest are African, Postcolonial, Gender, Diaspora, English, and Comparative Literature. She can be contacted at: Email: mrr19qyp@bangor.ac.uk OR morve_roshan@rediffmail.com

Empirical Study of Coronavirus and Its Impact on Economy

Kirti Prashar, Assistant Professor, Chandigarh Group of Colleges, India

Abstract: Coronavirus is a group of viruses that causes illnesses including cold, fever, Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). In 2019, a new kind of virus, named Coronavirus originated in China, which has become the challenge for the entire world. The symptoms for COVID 19 can range from mild to severe. And there are many cases, where people feel no symptoms of Coronavirus. Above 60 ages group (older) and who have medical case history like lung disease, heart problem, diabetes etc are at high risk of this virus. The main objective of the study is to provide an overview of Coronavirus. The paper aims to study the symptoms, causes and prevention measures for COVID 19 to all. The study also aims to analyze the impact of Coronavirus disaster on Gross Domestic Product and the stock market. The study will help the readers to know the status of nations Gross Domestic Product and the changes in the financial market and the future scenario of the economy.

Keywords: Coronavirus-2, COVID 19, impact; economy, stock market

Introduction

Coronavirus is a group of viruses that causes illnesses including cold, fever, (MERS) Middle East respiratory syndrome and (SARS) severe acute respiratory syndrome. In 2019, a new kind of Corona virus originated in China which have become the challenge for the entire world. This disease outbreak spread rapidly from one to another thus infecting the entire world at a rapid pace. This virus is also known by name SARS-COV-2 and cause the disease called COVID -19. Cases of COVID- 19 have been reported in many countries including China (Origin), US, Italy, India etc. Many organizations like (WHO) World health organization, Public health groups and U.S. Centers for disease control and prevention have monitored the case and posted recommendations for dealing with the virus after discussions with experts. In March 2020, Global pandemic was declared by the WHO after observing the growing cases of COVID-19. There are group of investigators who have been investigating about Corona from around 30 years ago and have identified some features of this Coronavirus-2.

Scientists are on work to investigate the disease which is spreading globally as a pandemic. The confirmed cases of disease till date have crossed 2 lakhs all over the world. Though it originated in China, Wuhan being the epicenter but it has spread so rapidly that in many countries the cases are doubling and tripling in every passing week. People are experiencing health issues like breathing respiratory problems, fever, cold cough and much more. The main risk factor of the disease is the travel history of people from one place to another and contacts of infected persons with others which results in an increased number of suspected cases. The major complications from COVID 19 resulted in organ failures, pneumonia in the lungs and even the death of a person. The study state that there is urgent requirement to implement comprehensive techniques to fight against the disease and get the economy back on the track. If the disruptive outbreak continues it will result in a decrease in GDP of all the nations. India has limited contribution in global supply chain and thus is expected to have low impact of disease on nations GDP as per Bloomberg marketing intelligence wing. The spread of disease all over the world has further hurted the sentiments of investors and is a setback for the investors all over the world as it has resulted in bringing down in prices of stock of major markets. The disease is not a good sign for the market as well. Spread of disease all over the world has hurted the sentiments of investors and is a setback for the investors all over the world as it has resulted in bringing down in prices of stock of major markets. The research is conducted using the exploratory methodology and comprise qualitative data as well as quantitative facts and figures. The research is conducted to understand the way things are. It mainly focuses on the conceptual understanding of the case at the world level. The study guides the readers to understand the facts and myths about the diseases.

Research Problem

COVID 19 a disease with a low fatality rate yet a pandemic due to high transferable rate has become a cause of disturbance to not one state or nation but to the whole world. The paper aims to study the symptoms, causes and prevention measures for COVID 19. The study also aims to analyze the impact of Coronavirus disaster on GDP and the stock of the market. The study will help the readers to know the status of nations GDP and the changes in the financial market and the future scenario of the economy.

Objectives of Research

- To provide an overview of Coronavirus as a world pandemic
- To study the symptoms and causes of Corona virus
- To find the preventive measure for the disease

- To analyze the effect of disease on nations Gross Domestic Product (GDP)
- To examine the impact of the virus on the stock market.

Research Methodology

The research is conducted using an exploratory methodology and comprise qualitative data as well as quantitative facts and figures. The research is conducted to understand the way things are. It mainly focuses on the conceptual understanding of the case at the world level. The study guides the readers to understand the facts and myths about diseases.

Literature review

Chun-da Chen (2003) conducted a research to study the impact of Severe Acute Respiratory Syndrome outbreak in Taiwan's market. He studied both positive and negative impacts of the case. The disease has symptoms ranging from mild illness to severe problems. According to him the impact on the stock market due to the illness outbreak was adverse and resulted in lower market prices in all aspects.

Ming- Hissang Chen (2007) performed the research to examine the impact of SARS break down on the tourism industry of the world and their stock prices. SARS was also a reparatory disease with greater fatality ratio having a negative impact in the lungs and other organs. The study revealed the negative impact of the disease on the tourism industry of the world.

Shen Lu and et al (2010) conducted the research to examine the portfolio management in case of epidemics in nation. The study revealed that these epidemics result in fall of prices of stocks of different industries but a corresponding increase in the price of pharmaceutical stocks.

An article by International Monitory Fund (March 2020) studies the spikes the uncertainties about the future and points out to a shrinking risk appetite of the investors. In a quarterly review(March,2020) by Banks for International Settlements, studies the impact of the stock prices through the lens of equity investors say that the impact of COVID-19 is more significant primarily because of the forceful reaction of the Chinese authorities to the outbreak, an increase in global integration. However, they point out how the stock market has recouped better after COVID-19 than SARS.

A publication by Norton Rose Fulbright (2020) examines the domino effect on derivatives due to market dislocation, could also lead to a business becoming insolvent.

K Kim (2020) conducted research on Covid 19. The study focused on examining the general rules and guideline by the WHO and other bodies. The study also aimed to provide the first aid management ideas by Zhongan, Wuhan Hospital University. The paper included epidemiological characteristics, population prevention, disease screening, diagnosis treatment, guideline methodology and treatment and prevention control techniques. These guidelines will help nurses and doctors for treatment of the Covid cases.

Symptoms for Coronavirus-2

Symptoms and sign of COVID-19 appear 2 - 14 days after actual exposure to the disease and include Cough, cold, Fever, Shortage of breath, respiratory problems, tiredness, aches, sore throat, and runny nose. The symptoms for COVID 19 can range from mild to severe. And there are many cases where people felt no symptoms of Coronavirus. People who are above 60 and have medical case history like lung disease, heart problem, diabetes etc are at high risk of this virus. The COVID 19 symptoms are somewhat similar to influenza, respiratory illness disease. In case anyone has felt any of the symptom of COVID 19 he is advised to see a doctor and immediately and even if no symptoms are felt but one has connected with any COVID positive person or live near or have travelled from the place with exposure of that person, one is advised to visit the doctor. Ongoing cases of COVID and spread of the virus is regulated and determined by WHO and CDC. There are some cases in which the patient had no symptoms of the virus yet were found positive for the same. The main solution for the virus provided by world is to test each and every suspect of the case and isolate or quarantine in order to stop exposure of the virus to others. The main reason for increased cases all over the world is due to connections between various people. One infected people further infect 3 more and those 3 can infect 9 others and the cycle spreads at rapid pace. Limited number of labs Govt. and private are another reason for delay in testing and isolating all cases. In India, there are only approx 150 labs all over the nation.

Causes of Disease

The disease spread from human to human especially among those who are in highly close contact. The illness may also be spread from the respiratory droplets which are released when one sneezes or coughs. In some cases, the disease had spread from just the touch on the infected surface which was in contact and exposure with the infected person. The diseases are highly transferable therefore it has been declared as a global pandemic by World Health Organization. The main risk factor of the disease is the travel history of people from one place to another and contacts of infected persons with other which results in an increased number of suspected cases. The main reason for increased cases all over the world is due to connections between various people. The major complications from COVID 19 resulted in organ failures, pneumonia in the lungs and even the death of a person.

Prevention of Disease

There has been no vaccine yet developed for the prevention of disease. WHO has thus advised some preventive measures which can help in controlling the illness which includes avoiding contact with sick persons, avoiding visits to events or being part of mass gatherings, Maintaining social distancing specially if you are at high risk of disease, Washing hands and using sanitizers with at least 60 % alcohol at regular intervals, covering mouth and nose with a tissue while sneezing and throwing them after use , avoid touching nose eyes and mouth and spend maximum time at home.

People are recommended to use sanitizers for prevention from germs and avoid contact with fire when used sanitizers. WHO also recommended that one should avoid eating raw, uncooked or animal organs. And one needs to stay away from animals and surfaces that infected persons might have touched. One needs to implement the policy of social distancing from pets as well for safety concerns. The main solution for the virus provided by the world is to test each and every suspect of the case and isolate or quarantine in order to stop exposure of the virus to others. ‘

Confirmed cases of COVID-19 illness in India (As on 14 May)

Confirmed = 78,003

Recovered = 26,235

Death = 2549

Myths about Coronavirus

- 1) Spraying Alcohol and chlorine on the body will kill germs. This will not kill germs but can be dangerous for skin and can cause a burn if near flames. Thus avoid such activities. People are recommended to use sanitizers for prevention from germs and avoid contact with fire when used sanitizers.
- 2) Only older adults are at risk. There are many cases of Coronavirus in young youths as well where as it is said that older adults with diseases are at greater risk of disease. India is a country where major of the COVID cases are found in young Indian as a major population of the country belong to the younger section
- 3) It is just like flu: - No, it is not like normal flu indeed it has many symptoms related to other diseases. The flu has low fatality case but high spreading power thus is more dangerous than normal viruses and is treated as pandemic all over the world.
- 4) Everyone infected with COVID will die: - It is not such Coronavirus has a death rate of 2% - 3% which is very less than other diseases but it is more dangerous as it spreads from one to other at a rapid pace. There are some cases of deaths a specially those who were already having other illness.
- 5) Dogs and Cats spread Coronavirus: - There are some evidences that dogs and cats can get affected by Coronavirus but they are not the origin of virus. There is a case in Pomeranian where the owner was infected with disease but pet showed no symptoms. One needs to implement the policy of social distancing from pets as well for safety concerns

Some Facts about Disease

Stated are some key facts which will help citizens to be safe from the disease one don't need to be afraid but need to do the duty of being a citizen by just staying at home and maintaining social distancing.

Fact 1 Disease can affect anyone of any age regardless of ethnicity or race. Whereas it is said that older adults with diseases are at greater risk of disease

Fact 2 Simple things like washing hands and social distancing help in keeping yourself healthy. People are recommended to use sanitizers for prevention from germs and avoid contact with fire when used sanitizers.

Fact 3 Immediate risks of getting infected with the disease is low it takes 2 – 14 days but spread at a rapid pace from one to another.

Fact 4 Being in Quarantine and isolation help to minimize risk of spreading disease. One needs to implement the policy of social distancing for safety concerns

The Fatality Rate of major Virus Diseases Worldwide in last 50 Years

Fatality rate is basically the death rate due to the viruses. It means the chances one die once infected with the disease. Usually, it is believed that greater the fatality rate dangerous the virus is COVID having low fatality is yet considered more dangerous than others due to high spreading rate from one person to another. Cases are multiplying rapidly all over the world on a daily basis making it a pandemic for the world.

- 1 Marburg 1967 = 80% fatality rate
- 2 Nipah 1998 = 77.6 % fatality rate
- 3 Hendra 1994 = 57 % fatality rate
- 4 HSN1 bird flu 1997 = 52.8 % fatality rate
- 5 Ebola 1976 = 40.4 % fatality rate
- 6 H7N9 Bird flu 2013 = 39.3% fatality rate
- 7 MERS 2012 = 34.4 fatality rate
- 8 SARS 2002 = 9.6 % fatality rate
- 9 Coronavirus 2020 = 2.2 % fatality rate
- 10 H1N1 2009 = 0.02% fatality rate

(Source: - Statista 2020)

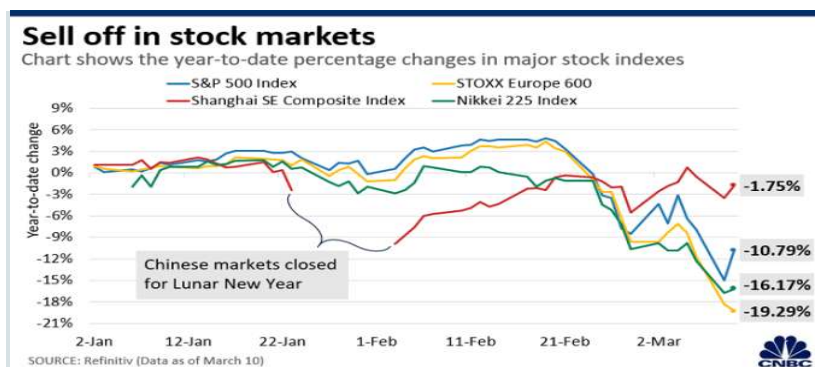
Expected Impact of Coronavirus on Indian GDP

GDP stands for Gross Domestic Product that is the total number of goods produced within the boundary of one nation. India has limited contribution in the global supply chain and thus is expected to have a low impact of the disease on nations GDP as per Bloomberg marketing intelligence wing. But that doesn't mean that it will have no impact on the economy of the nation. It will affect the economy of India as well but the comparative impact in the Indian economy as compared to China will be quite low. China being the epicenter for the disease will be highly impacted by the disease. India having low impact on GDP is mainly because India is an isolated country and comparatively has low interactions with global supply chain market. Another view of experts believes that if the disruptive outbreak continues it will result in a decrease in GDP of all the nations.

Impact on E-Commerce: - Pandemic disease N Coronavirus has hit the world badly. This is a blessing in disguise of E-Grocery Business. Online food retailers responding to an unexpected rise in demand after this disease (deloitte.com). In US, online grocery has now become the main part of Americans life (digitalcommerce360.com). Fear of infection has made population tech-savvy, many people have started shopping online in order to avoid in store connect and maintain distancing (Bhargabi Kundu 2020) E-grocers like Big basket, Amazon flip cart are facing problems to provide grocery supplies on time due to increased demand (Deepak Bhowmik 2020)

Stock Market global Scenario after the pandemic disease outbreak

The disease is not a good sign for the market as well. The spread of disease all over the world has hurt the sentiments of investors and is a setback for the investors all over the world as it has resulted in bringing down in prices of stock of major markets. Due to the pandemic virus; coronavirus, many banks and financial institutions have slowed down forecasting about the global economy, on the other hand Organisation for Economic Co-operation and Development are in the race to do the same. The study state that there is urgent requirement to implement comprehensive techniques to fight against the disease and get the economy back on the track. 50 % of Indian companies have fallen rapidly due to Coronavirus. 80 % have witnessed a fall in cash flow.



Source Refinitiv data as on 10 march

European markets and London FTSE have witnessed fell of around 3%. The Dow Jones industries result in lowered rates by 1 % and S&P fell down by 1.7% and SENSEX going down by approx 20 %. A broader view of the market reveals that the value of market has gone below 10 years average. Chinese Markets have been closed for lunar New Year. The market is on the other side an opportunity for the long term investors and pharmaceutical investors. If anyone is interested in investing for long terms, investing in this period can provide long terms benefits in long future period once the nation will recover from the pandemic.

Conclusion

The virus is also known by name SARS-COV-2 and cause the disease called COVID -19. Cases of COVID- 19 have been reported in many countries including China (Origin), US, Italy, India etc. Many organizations like (WHO) World health organization, Public health groups and U.S. Centers for disease control and prevention have monitored the case and posted recommendations for dealing with the virus after discussions with experts. In March 2020, Global pandemic was declared by the WHO. The symptoms for COVID 19 can range from mild to severe. And there are many cases where people felt no symptoms of Coronavirus. People who are above 60 and have medical case history like lung disease, heart problem, diabetes etc are at high risk of this virus. The COVID 19 symptoms are somewhat similar to influenza, respiratory illness disease. The main risk factor of the disease is the travel history of people from one place to another and contacts of infected persons with other which results in increased number of suspected cases. WHO has thus advised some preventive measures which can help in controlling the illness which includes avoiding contact with sick persons, avoiding visits to events or being part of mass gatherings, Maintaining social distancing specially if you are at high risk of disease, Washing hands and using sanitizers with at least 60 % alcohol at regular intervals. The disease is highly transferable therefore it has been declared as the global pandemic by the WHO. The main risk factor of the disease are the travel history of people from one place to another and contacts of infected persons with other which results in the increased number of suspected cases. The major complications from COVID 19 resulted in organ failures, pneumonia in lungs and even the death of the person. The study state that there is an urgent requirement to implement comprehensive techniques to fight against the disease and get the economy back on the track. India has limited contribution in the global supply chain and thus is expected to have low impact of disease on nations GDP as per Bloomberg marketing intelligence wing. The spread of disease all over the world has further hurted the sentiments of investors and is a setback for the investors all over the world as it has resulted in bringing down in prices of stock of major markets. The study revealed that these epidemics result in fall of prices of stocks of different industries but a corresponding increase in price of pharmaceutical stocks.

References

- Anthony S. F., M.D, H. Clifford Lane, M.D., & Robert R. Redfield, M.D. (March 26, 2020). Covid 19 Navigating the uncharted. *The New England Journal of Medicine*, 2020. 382:1268-1269.
<https://www.nejm.org/doi/10.1056/NEJMe2002387>
- Chen, H., Guo, J., Wang, C., Luo, F., Yu, X., Zhang, W., Li, J., Zhao, D., Xu, D., Gong, Q., Liao, J., Yang, H., Hou, W., & Zhang, Y. (2020). Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *Lancet* (London, England), 395(10226): 809–815. [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3)
- Gao, J., Tian, Z., & Yang, X. (2020). Breakthrough: Chloroquine phosphate has shown apparent efficacy in treatment of COVID-19 associated pneumonia in clinical studies. *Bioscience Trends*, 14(1), 72–73.
<https://doi.org/10.5582/bst.2020.01047>
- Hageman, J.R. (2019). The Coronavirus disease 2019 (COVID-19). *Pediatr Ann.* 49(3) e99-e100.
 doi:10.3928/19382359-20200219-01. PMID: 32155273.
- Kain, T., Fowler, R. (2019). Preparing intensive care for the next pandemic influenza. *Crit Care*, 23, 337.
<https://doi.org/10.1186/s13054-019-2616-1>
- Kannan, P. S., Shaik S.A., A. Sheeza, & K. Hemalatha. (2019). COVID-19 (Novel Coronavirus – recent trends. 10.26355/eurrev_202002_20378.

- Li, W., Shi, Z., Yu, M., Ren, W., Smith, C., Epstein, J. H., Wang, H., Crameri, G., Hu, Z., Zhang, H., Zhang, J., McEachern, J., Field, H., Daszak, P., Eaton, B. T., Zhang, S., & Wang, L. F. (2005). Bats are natural reservoirs of SARS-like coronaviruses. *Science (New York, N.Y.)*, 310(5748): 676–679. <https://doi.org/10.1126/science.1118391>
- Maxwell, Daniel & Perl, Trish & Cutrell, James. (2020). "The Art of War" in the Era of Coronavirus Disease 2019 (COVID-19). *Clinical infectious diseases: An official publication of the Infectious Diseases Society of America*. 10.1093/cid/ciaa229.
- Nava, S., & Hill, N. (2009). Non-invasive ventilation in acute respiratory failure. *Lancet (London, England)*, 374(9685): 250–259. [https://doi.org/10.1016/S0140-6736\(09\)60496-7](https://doi.org/10.1016/S0140-6736(09)60496-7).
- Rothan, H. A., & Byrareddy, S. N. (2020). The epidemiology and Pathogenesis of Coronavirus disease (COVID-19) outbreak. *Journal of Autoimmunity*, 109, 102433. <https://doi.org/10.1016/j.jaut.2020.102433>.
- Sohrabi, C., Alsafi, Z., O'Neill, N., Khan, M., Kerwan, A., Al-Jabir, A., Iosifidis, C., & Agha, R. (2020). World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *International Journal of Surgery (London, England)*, 76, 71–76. <https://doi.org/10.1016/j.ijso.2020.02.034>
- Sun, P., Lu, X., Xu, C., Sun, W., & Pan, B. (2020). Understanding of COVID-19 based on current evidence. *Journal of Medical Virology*, 10.1002/jmv.25722. *Advance Online Publication*. <https://doi.org/10.1002/jmv.25722>
- Tian, S., Hu, N., Lou, J., Chen, K., Kang, X., Xiang, Z., Chen, H., Wang, D., Liu, N., Liu, D., Chen, G., Zhang, Y., Li, D., Li, J., Lian, H., Niu, S., Zhang, L., & Zhang, J. (2020). Characteristics of COVID-19 infection in Beijing. *The Journal of Infection*, 80(4), 401–406. <https://doi.org/10.1016/j.jinf.2020.02.018>
- Touret, F., & de Lamballerie, X. (2020). Of chloroquine and COVID-19. *Antiviral Research*, 177, 104762. <https://doi.org/10.1016/j.antiviral.2020.104762>
- Velavan, T. P., & Meyer, C. G. (2020). The COVID-19 epidemic. *Tropical Medicine & International Health: TM & IH*, 25(3): 278–280. <https://doi.org/10.1111/tmi.13383>
- WHO report, March 2020. https://www.who.int/emergencies/diseases/novel-coronavirus-2019?gclid=EAIaIQobChMIydClgP3a6QIVCCUrCh1rA3mEAAAYASAAEgKN-vD_BwE
- Yao, X. H., Li, T. Y., He, Z. C., Ping, Y. F., Liu, H. W., Yu, S. C., Mou, H. M., Wang, L. H., Zhang, H. R., Fu, W. J., Luo, T., Liu, F., Guo, Q. N., Chen, C., Xiao, H. L., Guo, H. T., Lin, S., Xiang, D. F., Shi, Y., Pan, G. Q., ... Bian, X. W. (2020). Zhonghuabing li xue za zhi =. *Chinese Journal of Pathology*, 49(5), 411–417. <https://doi.org/10.3760/cma.j.cn112151-20200312-00193>
- Zheng, Y. Y., Ma, Y. T., Zhang, J. Y., & Xie, X. (2020). COVID-19 and the Cardiovascular System. *Nature Reviews. Cardiology*, 17(5): 259–260. <https://doi.org/10.1038/s41569-020-0360-5>

Covid-19: Emerging Health Crises and Its Impact on Economy**Tanveer Kaur**, Assistant Professor, Chandigarh Group of College, Landran, Punjab, India**Manmeet Singh**, Civil Engineer, Chitkara University, Himachal Pradesh, India

Abstract: Novel Coronavirus is a matter of concern worldwide. As human are achieving many milestones but still every time nature tells us our search cannot measure it. The same case is of Coronavirus that the whole human race is facing. nCov is a new emerging challenge to mankind and for the global economy. Coronaviruses are the group of the viruses that may cause sickness which can range from common cold to severe diseases like MERS-COV and SARS-COV. Outbreak of virus has become biggest threat to the financial market and global economy. Fear of novel coronavirus has impacted the global economy in the way that it have rocked markets across world , with plunging in the prices of stock and yields of bond. This virus is spreading at a very high rate around the world, especially in countries like China, Iran, Italy, South Korea, France, Spain and Germany. The objective of the study is to provide an overview on nCoronavirus declared as pandemic, to examine impact of Coronavirus on Indian economy and global economy and to study how people are reacting and dealing with COVID-19. Apart from this, objective of study to examine the trend of rising in number of cases of COVID-19 and the steps taken by Indian government to fight COVID-19. It is concluded that there is a need to implement comprehensive & robust measures to fight against nCov and get back the economy on track.

Keywords: nCoronavirus, COVID-19, Novel Coronavirus, Coronavirus, SARS, Social Distancing

Introduction

Pneumonia of unclear cause has been detected in Wuhan, China and on 31st December 2019 it was first reported to the country office of WHO in China. COVID-19. Coronavirus disease 2019 is a respiratory illness transmitted from person to person. The virus that is the reason of causing COVID-19 is also known as novel Coronavirus which was 1st identified during the investigation of outbreak in the Wuhan city, China. Consequently, due to its potential, it has been declared as a pandemic Coronavirus. nCov is a new emerging challenge to mankind and for the global economy. According to the latest figures released by WHO, the novel coronavirus whose origin is in china has infected more than 27,00,000 people across world till 23rd April, 2020. According to World Health Organisation, now the epicentre of COVID-19 has been shifted from Asia to Europe as a significant spike in number of cases can be seen in Europe & America.

In the phase of the outbreak of novel Coronavirus, Indian economy is facing a slowdown. In order to deal with this contingent virus, it becomes compulsive to cut our country import from countries which are affected by nCoronavirus which emerge as a new challenge for the people, businesses and for the economy as a whole. Outbreak of the virus has become the biggest threat to the financial market and global economy.

Objective

To provide an overview of nCoronavirus declared as a pandemic
 To study impact of Coronavirus on Indian and Global Economy
 To study how people are reacting and dealing with COVID-19
 To examine the trend of rising in the number of cases of COVID-19
 To study the steps taken by Indian government to fight COVID-19

Research Methodology

This research has been conducted with secondary data. This research is exploratory in nature that uses both qualitative and quantitative data related to the research topic. This research has been conducted to have conceptual understanding of research subject that is how such contagious virus is affecting mankind and the economy as a whole. The relevant information related to the subject has been collected from various articles, journals and websites in order to have the conceptual understanding of the research topic.

Literature Review

Author Year Objective Conclusion

Swatantra Kumar, Vimal Maurya and Shailendra K. Saxena 2020. The objective of study is to compare 2019-nCoV & SARS-CoV with each other. 2019-nCoV was a matter of concern worldwide

Researcher in their study collectively concluded that the emergence of 2019-nCoV was very much similar to SARS-CoV. On the basis of similarity of antigenic sites in both viruses, gave the scope for peptide based vaccine associated with SARS, for preventing nCoV.

Peng Zhou, Xing Lou Yand ...Zheng Shi 2020. The objective of research was to provide report on nCov . The researchers conducted in their study that 2019-nCoV was identical about 96 percent to bat coronavirus.

Fan wu, Su Zhao...Yong Zhen Zhang 2020. The objective of study to observe the patients suffering from respiratory disease caused by nCoV The study concluded that both SARS-CoV and SARS-CoV2 caused the respiratory disorder in the people infected by the viruses.

Wei Luo, Maimuna S Majumder.. Canelle Poirier 2020. The objective of study was to examine the relationship between transmission rate of nCoV with the presence of humidity in the environment The study concluded that variability in weather will alone was not responsible for decline in nCoV head count as extensive implementation of public health interventions plays an important role.

S. Mahendra Dev and Rajeswari Sengupta 2020. The objective of study was to describe the senario of economy of India in the prior period of Covid-19. It assessed potential impact on different segments due to emerging shock. Lastly they analyzed the various policies being announced by central government & RBI.

Study concluded that due to prolonged lockdown, global economy rocked and facing downturn as well as the demand & supply chain got disrupted and economy would faced protracted period of acute slowdown.

Sunil Kumar 2020. The objective of research was to study the impact of novel coronavirus on Indian economy.

The researcher in the research pointed out the various factors which were rocked due to covid-19 health crisis. Sectors affected were chemical industry, foreign trade, electronics industry, auto industry, poultry sector.

Conceptual Framework

Coronavirus and Ncoronavirus

Coronavirus are a group of viruses that may cause sickness which can range from common cold to severe diseases like MERS-COV and SARS-COV. Coronavirus is Zoonatic in nature that means it is transmitted from animals to humans.

In the family of Coronavirus, a new virus i.e. nCoronavirus was discovered in 2019 year. This is the virus that has not been identified previously in the human race. nCoronavirus is novel coronavirus which is also known as COVID-19 or SARS-COV2. Pneumonia of unclear cause has been detected in Wuhan, China & on 31st December 2019 it was first reported to country office of WHO in China.

Coronavirus is large pleomorphic spherical particles with bulbous surface projections. Its diameter is about 120nm. This virus is related to the virus which was found in mammals and birds. This virus cause respiratory tract infection that causes common cold, dry cough and fever. Therefore, in some cases, symptoms are silent. Person to person transmission of Covid-19 virus is due to close contact like sneezing while talking, handshake and contaminated surface. Other name of Covid-19 is Sars-Cov-2. Covid-19 cells first infect cell lining, throat and lungs. These parts become the factories of the virus.

COVID-19: Coronavirus disease 2019 is a respiratory illness transmitted from person to person. The virus that is the reason of causing COVID-19 is also known as novel Coronavirus which was 1st identified during the investigation of an outbreak in the Wuhan city, China. Consequently, due to its potential, it has been declared as pandemic Coronavirus.

Impact of Coronavirus on Indian Economy

In the phase of the outbreak of novel Coronavirus, Indian economy is facing a slowdown. In order to deal with this contagious virus, it becomes compulsive to cut our country import from countries which are affected by nCoronavirus which emerge as a new challenge for the people, businesses and for the economy as a whole. These are the few facts and figures that are reported in the economy:

- About 50% of Indian companies have an impact on its operations due to COVID-19
- About 80% of Indian companies have witnessed a steep decline in cash flow.
- Coronavirus pandemic is emerging as a new challenge for the economy of the country, which is causing severe impact on both elements demand & supply and it directly the impact the growth graph up or down easily.
- Cut in the import which gave birth to a shortage in market of few items in the form of raw material or/ and finished goods.
- In the wake of the novel coronavirus, India stock market entered into the bear market. Pandemic Coronavirus has arrived with so many problems for the general public, for their health & even for their businesses. But it comes up with few positive impacts as well like:
- Apart from this due to “social distancing” and partial lockdown in the country, people are traveling relatively less and public transportation is temporarily put on hold, in this way demand for petrol has

declined rapidly. As India is importing crude oil, this time in the wake of COVID-19 import bill of crude oil has declined by 10 percent.

- In the wake of coronavirus, consumption of crude oil has been reduced in India which brought the air pollution significantly at a lower level. Air Quality Index (AQI) has improved in many cities and states of India like Delhi, Chandigarh and many more
- Due to prohibition in import from affected countries give an opportunity for Indian economy to enter into the manufacturing of goods which were imported earlier. It can be seen as opportunity for supporting Made in India campaign.

Impact of Coronavirus on Global Economy

Outbreak of virus has become biggest threat to the financial market and global economy.

Economic Forecast: Downgrade. In the wake of novel coronavirus, major banks & institutions have cut forecasting about global economy. GDP of China has shown highest downfall in magnitude terms. According to OECD Economic Outlook Report (March 2020), (<https://www.cnbc.com/2020/03/12/coronavirus-impact-on-global-economy-financial-markets-in-6-charts.html>)

- It is expected that Asian economic giant to grow by 4.9% in 2020 whereas, it is slower that of 5.7%.
- It is expected that global economy to grow by 2.4% in 2020 but it is slower that of 2.9%

Setback to manufacturing sector

In China manufacturing sector is hit hard by the novel Coronavirus. According to latest survey, points below 50 on the index indicate contraction. Not even China, countries in close contact with Chinese economy especially like Vietnam, South Korea and Singapore has also affected adversely by the slowdown in manufacturing in china. Due to outbreak of coronavirus, manufacturing activity at global level will remain subdued.

Contraction of Services

Due to outbreak of novel coronavirus, the service industry is also affected not only in China, but has hit the service sector of America which is the largest consumer market worldwide. As in the wake of the novel coronavirus, there is acute reduction in spending by consumers worldwide that hurts the retail stores, hotels, restaurants & aviation among others.

The Decline in the prices of crude oil

A downfall in global economic activity reduced the demand for oil ultimately can be said import of crude oil came down which taking prices of crude oil to multi year low. China is the largest importer of crude oil followed by India. For the first time that crude oil prices have gone negative as no space is left for storage of crude oil.

Stock market: sell off-trend

Fear of impact of novel coronavirus on world economy has hurt the sentiments of investors which put the prices of stock at low in the major markets around the world.

Coronavirus has impacted the global economy in the way that it have rocked markets across the world, with plunging in the prices of stock and yields of the bond. In the latest reports, it is claimed that whole economy of the world entered into the recession in economic cycle which may be worsened than that of the recession may the whole world faced in 2009.

HOW PEOPLE ARE REACTING AND DEALING WITH COVID-19?

People try to self-quarantine so that they can save themselves from the virus. People avoid handshakes and public gatherings. Namaste/Sat-sri-akal and waving is in trending mode worldwide. But some people are not serious about the virus as they roam around the streets, meeting people and attending public gatherings. As we know its epicenter is china and spreads towards other countries. As in India people with travel history may be affected and the government of India screening them on airports. The person with the positive result is quarantined by government officials, but some of them ran away from hospitals and shelter themselves in their houses or their relative/friend house and make them affected by the virus. As in India public transportation is backbone but Covid-19 put it on Holt. People are hiding their history from officials.

Due to the risk of lockdown people start buying essentials in bulk for coming months and creating panic among themselves and the community. PM of India advised not to create panic to buy essentials as India

has a good quantity of stocks to meet the future requirement. People are fighting for toilet papers in Australia. Greece government said not to collect essentials beyond the basic requirement.

People are trapped by two types of viruses one is Covid-19 and other one is social media-19. People are trusting on fake news on social media and sharing them too, create panic among the community. Some news channels are exaggerating about the virus and creating panic among the people. Some people are making videos on social media about how to cure Covid-19, as they not even have any medical science background.

Some of myths are-

- Novel coronavirus is not transmitted in hot areas.
- Coronavirus can be transmitted by mosquito bites
- Garlic can cure Covid-19
- Old age group is more affected

In India people are not trusting on government effort and some of them said that if it breakout in India government will not able to deal with it and on the other side WHO appreciates Indian government quick response towards Covid-19.

This virus affects all class of people, whether it is a politician or actor. Some of the cases came to our notice like Canadian president's wife and many more. It's hard for economically backward class to self-quarantine because they earn on the daily basis and run their families. Therefore, chance of getting affected is more because they can't home arrest themselves.

Comparative Study of Spread of Covid-19 in Different Countries

Geographical Region Confirmed Cases till 23 April, 2020

USA	903298
Iran	888194
Spain	219764
Italy	192994
France	159828
Germany	154159
UK	143464
Turkey	104912
China	82804
Russia	68622
Canada	43551
India	24434

Interpretation: nCoronavirus outbreak in china and spread across the world. No country left unaffected from the terror of nCornavirus. China flattened the curve of the increasing number of positive cases of nCornavirus in a very short span of time. As being most contagious nature of nCornavirus, it spreads in exponential rate which means in first two weeks it may seem that cases of affected patient of nCornavirus is in control but in later weeks figures can portraint the horrible picture of affected people due to its highly contagious nature. So many countries may neglect and take it in lighter way due to which large number of people is paying cost to it. The trend of increasing number of cases of affected people with nCornavirus from one week to another is quite similar in all countries but the only country Italy& America has shown outlier values which are quite shocking. According to the World Health Organisation, now the epicentre of COVID-19 has been shifted from Asia to Europe as a significant spike in number of cases can be seen in Europe & America. Now Europe & America is showing highest rate in growth of cases where the number of people died infected with COVID-19 is much higher than that of China. After Italy, graph of America is showing a similar trend of an increasing number of cases of affected people with nCornavirus. Now a number of people affected with coronavirus are highest in America followed by Iran.

Steps Taken by Indian Government to Fight Covid-19

- When the world came to know about Covid-19 breakout in China. Government of India gives guidelines to airport authorities to screen Chinese passengers but did not screen passengers from the rest of the countries. This is the reason of Covid-19 positive case in India.
- Prime Minister of India addresses people about Covid-19 and declares Janta Curfew on 22nd March 2020 followed by Phase:1 lockdown from 25 March to 14 April 2020 and then Phase:2 lockdown from 14 April to scheduled date 3 May, 2020.
- Government of India shutdown the schools, colleges till 3rd May, 2020

- Biometric system is shutdown in all offices in the early days of partial lockdown
- Sanitization of public buses, offices
- Market, mall, park, cinema are shutdown
- People are advised by authorities to the home arrest themselves
- Public transportation is put on Hold in some states
- Some officials building are converted into hospitals

Conclusion

Coronavirus disease 2019 is a respiratory illness transmitted from person to person. According to the latest figures released by WHO, the novel coronavirus whose origin is in china has infected more than 27,00,000 people across the world till 23rd April. So many countries may neglect and take it in a lighter way due to which large number of people is paying the cost to it. The trend of the increasing number of cases of affected people with nCoronavirus from one week to another is quite similar in all countries but the only country Italy has shown outlier values but now America is also on the same track.

Outbreak of the virus has become the biggest threat to the financial market and global economy. In order to deal with this contagious virus, it becomes compulsive to cut our country import from countries which are affected by nCoronavirus which emerge as new challenge for the people, businesses and for the economy as a whole. Fear of impact of novel coronavirus on the world economy has hurt the sentiments of investors which put the prices of stock at low in the major markets around the world. It is concluded that there is a need to implement comprehensive & robust measures to fight against nCov and get back the economy on track. Pandemic Coronavirus has arrived with so many problems for general public, for their health & even for their businesses but it comes up with few positive impacts as well.

The intensity of novel coronavirus can be judged by its contagious nature as well as from its mortality rate. Therefore, the government should come up with strict and stringent steps to fight against ncoronavirus i.e. strict lockdown as well as come up with stimulus plans in order to save economy to go into a deep depression. Apart from this general public should follow steps laid down by the government in a more proactive manner.

References

- Cui J., Li F., Shi ZL. (2019). Origin and Evolution of Pathogenic Coronaviruses. *Nat Rev Microbiol*, 17(3), 181-192. doi:10.1038/s41579-018-0118-9
- Gaikwad, A., & Dhokare, C. S. (2020). Coronavirus: The Impact of Covid-19 on India Economy. *Purakala* 31(33), 242-253. ISSN 0971-2143.
- Ge, X., Li, J., Yang, X. et al. (2013). Isolation and Characterization of a bat SARS-like coronavirus that uses the ACE2 receptor. *Nature*, 503, 535–538.
<https://www.asiaindex.co.in/indices/equity/sp-bse-sensex>
- Kain T, Fowler R. (2019). Preparing Intensive Care for The Next Pandemic Influenza. *Crit Care*, 23(1), 337. doi:10.1186/s13054-019-2616-1
- Lee, J-W., & W. McKibbin. (2004). Globalization and disease: The case of SARS. *Asian Economic Papers*, 3, 113-131.
- Nava S, Hill N. (2009). Non-invasive Ventilation in Acute Respiratory Failure. *Lancet*, 374(9685), 250-259. doi:10.1016/S0140-6736(09)60496-7
- Rani, R. (2020). The Impact of Corona Virus on Indian Economy. *Studies in Indian Place Names*, 40(60), 3618-3626.

Masked-Face Detection and Distancing System

Saumya Srivastava, Department of Technology, Computer Science and Engineering, Shri Ramswaroop Memorial Group of Professional Colleges, Lucknow, India

Abstract: The problem of Covid-19 is at its full extent and needs consideration on urgent basis. Several researches are going on in medical field discovering a vaccine to curb the effect of corona virus but till the time these researches are not reaching their conclusion, some preventive measures have been adopted to reduce the spread of corona virus in the mass. Hence, governments have ordered to observe lockdown, instructed people to wear masks while stepping out of homes and keep a distance of at least 6 feet between two individuals. This requires an automated system that will monitor the mob on road, employees in workplace etc. whether they have worn masks and maintaining social distancing or not. Masked-face detection and distancing system is an automated system consisting of modules that will detect whether the faces being observed are masked and socially distanced, if not, will do the necessary to get that done.

Keywords: Drones; social distancing; masked face detection; artificial intelligence; COVID-19; pandemic's technical solution.

Introduction

The pandemic, COVID-19, an acronym for Corona Virus Disease of year 2019, is a major health crisis of our time & is one of the greatest challenges that we have faced. This virus emerged in Wuhan, China late last year and in no time, it got spread in entire world except Antarctica. This virus is infecting human race horribly and the cases are rising tremendously day by day, especially in America, Asia and Europe.

In order to effectively prevent the spread of corona virus, governments have ordered to observe lockdown & step out of home only when necessary, wearing a mask. More or less, there exists some section of society which does not follow the rule and thus are aiding in the spread of the pandemic. Hence, it is very urgent to track such suspects and get them in order to follow the rule. Solution to this is related to human face detection. Human face detection plays significant role in various applications like face recognition (Schneiderman, & Kanade, 2000; Brunig, & Menser, 1999; Colmenarez, & Huang, 1997.), face image database management (M. Jones, J.M. Rehg, 1998) and video surveillance.

To this end, this paper proposes a solution that enables the use of drones to detect faces (J. Deng et al., 2019; W. Liu et al., 2017; T. Hassner et al., 2017) with mask on them and also observing social distancing. The face detection algorithm here requires certain datasets to work on so as to get the deep knowledge on identification process. (https://www.researchgate.net/publication/340094651_Masked_Face_Recognition_Dataset_and_Application)

Objective

The current and prevalent situations of the world are no more soothing. The entire world is suffering from the devastating effects of the pandemic, COVID-19. At the time when novel corona virus has outspread, leading the world to immense sufferings and horrible consequences, several researches are on to stop the outspread of this virus. However, no such solution has come up yet, but various ways have been discovered to prevent ourselves from getting the infection, some of which include social distancing and using masks for covering your mouth and nose.

To ensure a massive percentage of success in controlling the spread of novel corona virus, it is mandatory to observe the effective implementation of the rules setup which mainly includes wearing masks and maintaining social distance. In this reference, this paper provides a technical solution that would help in monitoring the implementation of social distancing concept and application of masks by people stepping out of their homes for any purpose. The solution is an automated system named as Masked- Face Detection and Distancing System. This paper will help in developing an automated system that will reduce human labour and do the job of monitoring and getting the rules implemented as such. This will reduce the job of law enforcing authorities and make the task simpler and more effective.

Literature Review

Several researches have already been done in the fields of Artificial Intelligence and Machine Learning regarding preventive & controlling measures against Covid-19. During the prevalent conditions of COVID-19, it has been made mandatory for every individual to step out of his home wearing a mask for sure. However, doing so led to another problem of identification of masked persons which in turn raised issues in maintaining

attendance of employees at workplaces and students at institutions. For the sake, Masked- face recognition modules have been developed that serve the purpose of identifying masked faces as respective employees at their workplaces like offices, institutions, banks, hospitals, etc.

Drone-based technologies are very common today & also being used nowadays that can effectively be used for this purpose too. Drones are flying bots that are provided with energy supply, high definition cameras and several other modules, those altogether make drones an effective mechanism for monitoring various tasks like video surveillance.

These technologies are of great help in taking the world at greater heights. Hence, in this war against this invisible enemy, location technology and autonomous machines will serve the required purpose. Drones, air bots, are playing a key role by helping authorities and people in different ways to prevent further spread of the corona virus outbreak. The drone technology has the capability of being unprecedented measure to reduce people-to-people contact.

In order to train such autonomous systems based on artificial intelligence, several databases containing the information regarding masked faces in the real world are used. These databases are fed into the system to make them capable of determining the difference between a masked face and an unmasked one.

Proposed Methodology

This detection model involves the use of fast and effective technologies and models namely, Artificial Intelligence, facial detection algorithms base on Artificial Intelligence models (also known as “Deep learning”), more importantly drones and parts of metrics system, GPS, high-end camera, radio control and power supply.

Working

The model begins with the Facial detection software which is based on the detection of face that is, it first requires knowing that there exists a face in its frame to be detected. This can be done by installing the knowledge of how masked faces look like, in software. This aspect is achieved by alimenting considerable number of faces in the computer until it becomes able to determine how a face looks like with or without mask on it. Such a dataset can be termed as Real World Masked Face Detection Database (RWMFDD). These images can also have notations such as masked face, bare face and coordinates of masks too. These images contained within the database are of masked faces, may be some even unmasked.

Once the software detects a face in its frame, it normalizes it to get the normalized coordinates of the face and the mask using graphics. Then, feature extraction (template generation) is done in which normalized face is analyzed by a mathematical model that converts pixels into a string of text. Thus, finally representing the face as a text string and can then compare them with the threshold values computed from dataset & can declare it as masked or not. The threshold value refers to the aggregate coordinates of mask on human face within which if a person's mask coordinates lay, then it is marked and considered masked else not. The threshold value is calculated by analyzing the masked face and other facial databases.

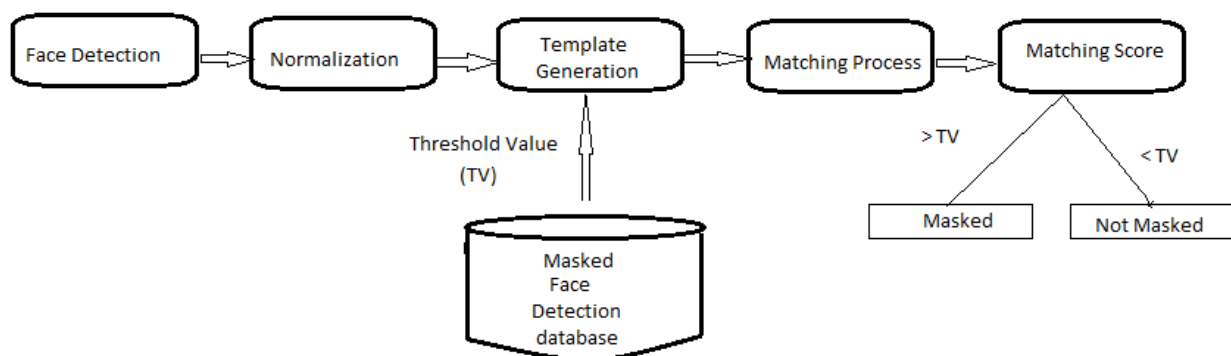
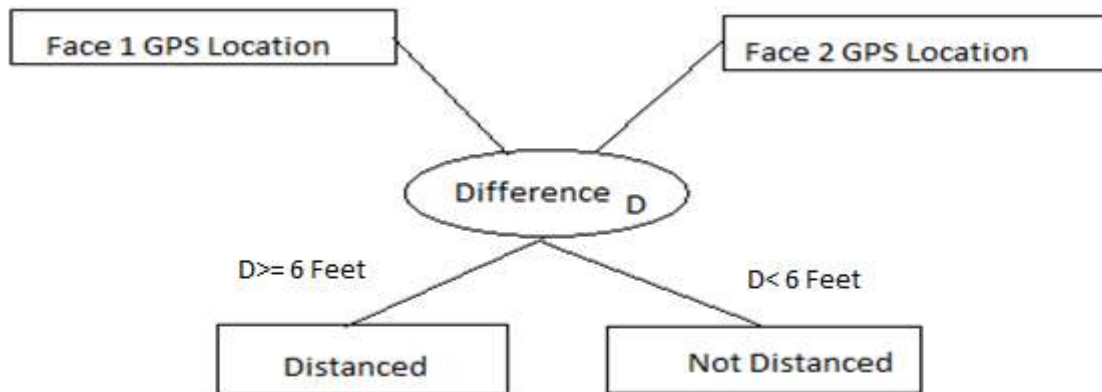
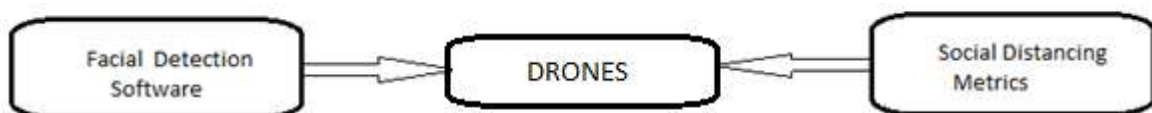


Fig: Facial Detection Software

Along with the knowledge of Real World Masked Face Detection Database, the software requires to have knowledge of metric system so as to determine whether social distancing is being followed or not. The minimum distance between 2 individuals required to ensure social distancing is 6 feet (2 arms' distance). This is done by identifying two faces and comparing the distance between them using their location, obtained by GPS system. Global Positioning System is used for detecting the location and positioning the desired object. The tracking device essentially contains a Global Positioning System module that receives the GPS signal and calculates the coordinates. These recorded locations can be stored in databases within the tracking devices or transmitted to an internet connected-device for further processing. These GPS locations will then be inputted in the algorithm to calculate the distance between the individuals and will judge the criteria of social distancing.

**Fig: Social Distancing Metrics**

Drones (Unmanned Aerial Vehicles) are flying bots that are software controlled working together with the use of sensors and GPS. The facial detection software & metrics will be fed into drones that will monitor and detect the facts as described. Also, Google Map and a database containing the information of patrolling officers working actively in different regions are fed in drones to identify the corona hotspots in the country. If it detects an unmasked man or finds a distance of less than 6feets between two individuals, it responds to the necessary officials in that area and gets that sorted. These drones are the major mechanisms that help the authorities and people to monitor and reduce people-to-people contact. In some areas where individuals are not complying with the restrictions, knowingly or unknowingly, or do not know the latest restrictions are, law enforcing authorities will be using drones to monitor people's movement and breakup social gatherings that could pose a risk to the society by incrementing the percentage of infection and infected people.

**Fig: Masked Face Detection & Distancing System****Basic Algorithm:**

```

Struct face{
    string fcrd; // face coordinates as string
    string maskcrd; //mask coordinates as string
    int location;
    int mask; // 1=masked, 0=unmasked
    int sdis; // 1=distanced , 0=not proper distanced
};
Face_detectionalgo()
{ will detect face
  Initialize fcrd and maskcrdcoordinates
Return;
}
Intis_masked(face f)
{
if(f.maskcrd comparison default_f.maskcrd==true) // default_fcorresponds to threshold value
f.mask=1;
else {
f.mask=0;
gen_alert();
}
return f.mask;
}
Void is_socially_distanced(face f1, face f2)
{
If(|f1.location-f2.location| >=6)
{f1.sdis=1;
  
```

```

f2.isdis=1;}
else
{ f1.sdis=0;
f2.isdis=0;
gen_alert();
}
}
gen_alert()
{send alert to officials of that location
}

```

Expected Result

This technology works on the threshold values generated from the dataset. This system can effectively aid the government in controlling the effect of pandemic and be used in monitoring the status on roads, parks, malls, stores, offices, health centre, etc. This will help in ensuring that the rules made by the government as necessary are effectively being followed. This system can be used wherever it is required to monitor the audience. It will surely help in mitigating the spread of novel corona virus.

Conclusion

I think that the ideology of using drones for facial detection and monitoring social distancing will prove to be effective in lessening the spread of COVID-19 virus. It is capable of detecting faces of individuals and determining whether they are masked or not and forcing necessary actions to be taken to get the required done. At the same time, it is capable of ensuring that the concept of social distancing is being followed by using metrics to determine the distance between individuals. Such a system is really desirable in the current scenario to govern and reduce the spread of virus. Here, I conclude with the hope of having good results in future as per the implementation of the proposal and observing decrement in the infection caused by COVID-19 virus.

References

- Colmenarez, A. J., & T.S. Huang.(1997). Face Detection with Information Based Maximum Discrimination", *IEEE Int'l conf. computer vision and pattern recognition*, 782-787.
- Jones,M., & J.M. Rehg, (Dec. 1998). Statistical Color Models with Application to Skin Detection. *Technical Report Series*,
- Deng, J. J. Guo, N. Xue, S. Zafeiriou, (Jun. 2019).ArcFace: Additive Angular Margin Loss for Deep Face Recognition. *CVPR*, 4685-4694.
- Hassner, T.,Tran, A. T., Masi, I. &MedioniG., (Jul. 2017).Regressing Robust and Discriminative 3d morphable models with a very deep neural network. *CVPR*, 1493-1052. <https://www.researchgate.net/publication/340094651>
- Liu, W. et al. (2017). Sphereface: Deep Hypersphere Embedding for Face Recognition. *CVPR*, 6738-6746.
- Menser, B., & M. Brunig. (Dec. 1999).Locating Human Faces in Color Images with Complex background. *Intelligent Signal Processing and Comm. Systems*, 533-536,.
- Schneiderman, H., &Kanade T.(June 2000). A Statistical Method for 3D Object Detection Applied to Faces and Cars. *Proc. IEEE Conf. Computer Vision and Pattern Recognition*, 746-751.
- Wang, Z. et al.“National Engineering Research Center for Multimedia Software.” School of Computer Science, Wuhan University, Wuhan, China.

World's Distribution of Covid-19 Cases and The Benford's Law

Aldwin T. Miranda, Southern Philippines Agri-Business and Marine and Aquatic School of Technology
Malita, Davao Occidental, Philippines

Abstract: A novel corona virus causing severe respiratory disease, now known as COVID-19, has been declared pandemic by the World Health Organization. It spread to almost all countries in the world, recording a number of COVID-19 positive cases, deaths, and recoveries. In this study, we examined the distribution of the reported COVID-19 data if it conforms to the principle of the Benford's Law. Two months after the pandemic declaration, a test was conducted by comparing the relative frequency (F_r) distribution of the first digit number of the world's COVID-19 cases with the Benford's distribution. Kolmogorov-Smirnov test (KS) was then employed to analyse the difference between the two distributions. Results show that there is no significant difference between the first digit distribution of the COVID-19 data and the Benford's distribution. In conclusion, the reported COVID-19 data sets conform to the principle of the Benford's Distribution.

Keywords: COVID-19 cases, first-digit number, relative frequency distribution, Benford's law

Introduction

A novel corona virus was first documented in China in late December 2019 causing severe respiratory disease, now known as COVID-19 (corona virus disease). In just few weeks, this infectious disease has spread around the globe, tallying positive cases in almost all countries. On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic, citing the reports of more than 118,000 cases of the coronavirus disease in over 110 countries and territories around the world with the sustained risk of further global spread (Ducharme, 2020).

The range of Covid-19 has sent billions of people into lockdown as health services struggle to cope (Gutierrez, 2020). Most countries strictly implemented community quarantines and impose public health measures which includes the wearing of face masks, hand hygiene, respiratory etiquette, and the practice of physical distancing. Two months after the pandemic declaration, 212 countries and territories around the world and 2 international conveyances has been affected by COVID-19 (<https://worldometers.info>). As of May 12, 2020, the worldometers.info website recorded a total of 4,255,942 confirmed COVID 19 cases with 287,332 total deaths and 1,527,496 total recoveries, distributed throughout the countries worldwide. Perhaps, we may ask: is the distribution of these COVID-19 cases obeys some mathematical principle? One thing we can investigate is the comparison between the distribution of the first digit number of the reported COVID-19 cases in each country and the distribution described by Benford's Law.

Benford's Law is the finding that the leading digits of several sets of numbers are not evenly distributed, as we expected, but are significantly skewed toward the smaller digits (Miller, 2015). As observed, several statistical data coming from natural or social processes are distributed in this manner (Diekmann, 2007). This rule enables us to predict the frequency of the appearance of number 1 through 9 being the first non-zero digit in the data set (Silverstein, 2014).

Objectives of The Study

The aim of this study is to examine if the distribution of the reported Covid-19 cases worldwide obeys that of the Benford's Law. Specifically, it sought to determine the distribution of the first digit of the total Covid-19 cases, total number of deaths, and total number of recoveries in countries, territories, and international conveyances around the world as of May 12, 2020 and as reported by worldometer.info. In this study, the observed distribution of these reported data will be compared to the expected distribution set by the Benford's Law.

Materials and Method

This study employed a quantitative analysis on the reported data on COVID-19 Cases, which includes total number of cases, total number of deaths, and total number of recoveries worldwide. The author opted to use the data as of May 12, 2020 – two months after WHO declared COVID-19 a pandemic. The data is gathered from the worldometer.info website - <https://www.worldometers.info/coronavirus/>.

Selection of the First Digit

This study considered the COVID-19 data being nonzero and non-negative integers. Thus, the first digit number is obtained by finding the significant and $S(x)$ from the raw data x . This is done by moving the decimal point immediately to the right of the first nonzero digit (Berger & Hill, 2017). For example $S(213) = 2.13, S(29) = 2.9$, both with first digit being 2.

Observed Distribution

The observed distribution is the relative frequency (F_r) distribution of the first digit numbers of COVID-19 cases - total cases, total deaths, and total recoveries. From the first digit number of the COVID 19 data, the observed relative frequency distribution is formed by

$$F_r = \frac{F_a}{TF_a},$$

Where:

F_r = relative frequency;

F_a = absolute frequency in each first digit number;

TF_a = total absolute frequency

Expected Distribution

The expected distribution is the first digit probability as described by the Benford's Law with the following formula (Stephannie, 2016):

$$P(d) = \frac{\ln(1 + \frac{1}{d})}{\ln(10)},$$

Where:

$P(d)$ = probability of the occurrence of the digit d ;

d = the first digit, $d = 1, 2, 3, \dots, 9$.

Hence, the expected distribution is shown in the following table:

Table 1. The Expected Distribution of the First Digit Numbers (Stephannie, 2016)

First Digit (d)	Probability
1	0.30
2	0.18
3	0.13
4	0.10
5	0.08
6	0.07
7	0.06
8	0.05
9	0.05
TOTAL	1.00

Statistical Analysis

Kolmogorov-Smirnov test (KS) is employed to analyse whether there is a significant difference between the observed frequency distribution and the expected distribution at 95% confidence interval. This Goodness of Fit test has no restrictions on sample size, that is, we can still compare two distributions even with small sample.

Results and Discussion

As of May 12, 2020, the worldometers.info website recorded a total of 214 countries / territories / conveyances worldwide with at least one positive COVID-19 case, 177 countries / territories / conveyances with at least one death, and 208 countries / territories / conveyances with at least one recovery.

Table 2 presents the absolute and relative frequencies of the first digit number of the three reported data on COVID-19 – the Total Cases, Total Deaths, and Total Recoveries. As observed, relative frequencies (F_r) of the

first digit number 1 is higher compare to other leading digits, and (F_r) is decreasing as the first digit number is increasing up to the digit 5. First digit numbers 6, 7, 8, and 9, in the Total Cases, Total Deaths and Total Recoveries, obtained very minimal (F_r) values ranging from 0.02 – 0.07.

Table 2. The Observed First Digit Distribution of COVID-19 Cases in the World.

First Digit Number	Total Cases		Total Deaths		Total Recoveries	
	Absolute Frequency (F_a)	Relative Frequency (F_r)	Absolute Frequency (F_a)	Relative Frequency (F_r)	Absolute Frequency (F_a)	Relative Frequency (F_r)
1	84	0.39	59	0.33	67	0.32
2	34	0.16	34	0.19	36	0.17
3	21	0.10	23	0.13	24	0.12
4	14	0.07	16	0.09	17	0.08
5	12	0.06	12	0.07	17	0.08
6	16	0.07	6	0.03	12	0.06
7	16	0.07	9	0.05	10	0.05
8	12	0.06	6	0.03	14	0.07
9	5	0.02	12	0.07	11	0.05
TOTAL	214	1.00	177	1.00	208	1.00

The First Digit Distribution of the COVID-19 Cases and the Benford's Law

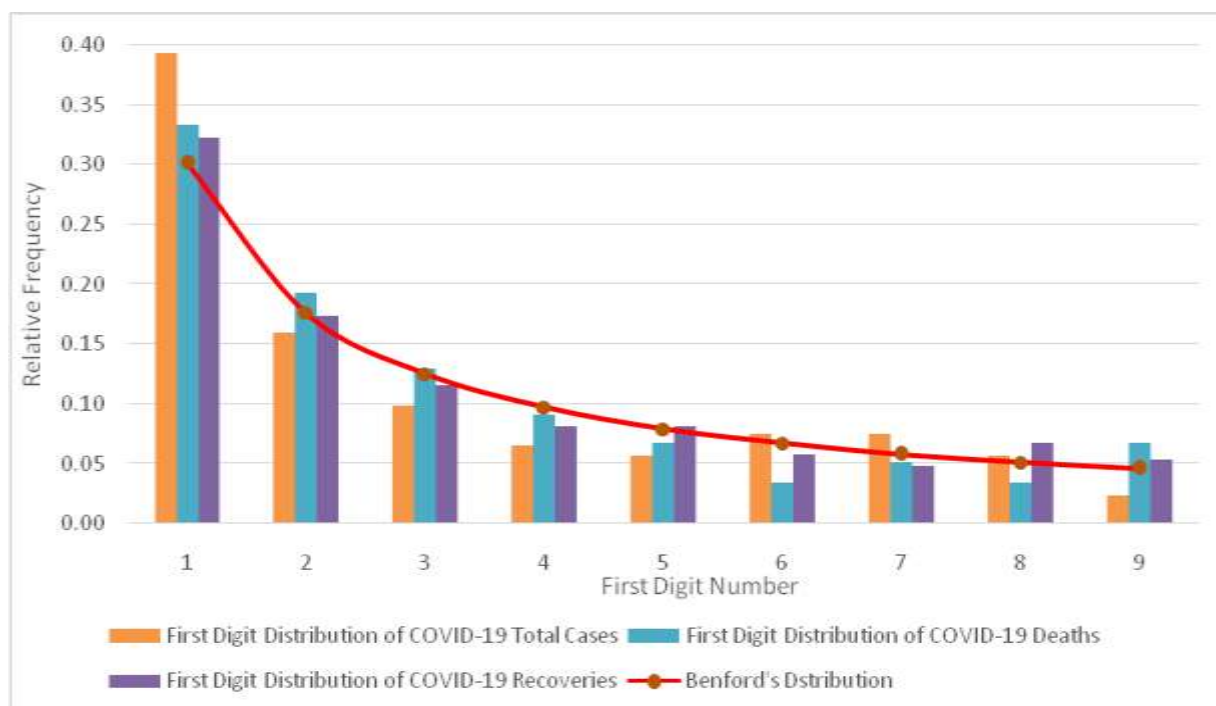


Figure 1. The Observed Distribution of the First Digit Numbers of COVID-19 Total Cases, Total Deaths, and Total Recoveries with the Benford's Distribution.

Figure 1 is the graph showing the observed distribution of the first digit number of COVID-19 Total Cases, Total Deaths, and Total Recoveries with our expected distribution - the Benford's Law. By inspection, we may notice that observed distributions coincide with our expected distribution. Employing Kolmogorov-Smirnov test (KS) at 0.05 significant level yields the results in Table 3. In the three COVID-19 data considered – Total Cases, Total Deaths, and Total Recoveries, the statistical p-values are all greater than 0.05 significant level which lead us to the following conclusions:

There is no significant difference between the observed distribution of the first digit number of the reported COVID-19 Total Cases and the Benford's Distribution.

There is no significant difference between the observed distribution of the first digit number of the reported COVID-19 Total Deaths and the Benford's Distribution.

There is no significant difference between the observed distribution of the first digit number of the reported COVID-19 Total Recoveries and the Benford's Distribution.

Table 3. Test Difference Between the Observed Distribution of COVID-19 Cases and the Benford's Law.

COVID-19 Case	p-value	Interpretation
Total Cases	0.979	Not Significant
Total Deaths	0.979	Not Significant
Total Recoveries	0.999	Not Significant

SUMMARY AND CONCLUSION

This study makes use of the data reported and available at www.worldometers.info/coronavirus as of May 12, 2020, two months after WHO declared COVID-19 a global pandemic. Three COVID-19 Data are being considered – the Total Cases, Total Deaths, and Total Recoveries. The observed relative frequency (F_r) distribution of the first digit numbers of these respective collection of data are compared to the expected distribution described by the Benford's Law. The graphs of these data seem to show that the observed distribution agrees with our expected distribution. The Kolmogorov-Smirnov test (KS) reveals that there is no significant difference between the observed relative frequency distribution of the first digit of these respective data sets and the expected distribution - the Benford's Law. Hence, we can conclude further that the reported COVID-19 data sets conform to the principle of the Benford's Distribution.

This study only considered the reported data as of May 12, 2020, hence, it is recommended to test the accumulated data in the future, especially when this pandemic is over. Further, this study may be replicated to test the reported data in specific countries or regions of the world.

References

- Berger, A & Hill, T.P. (2017). What is Benford's law? *Notices of the AMS*, 64:2, 132-134, DOI: <http://dx.doi.org/10.1090/noti1477>
- COVID-19 Coronavirus Pandemic: Reported Cases and Deaths by Country, Territory, or Conveyance (2020, May 12) <https://worldometers.info/coronavirus>
- Diekmann, A. (2007). Not the first digit! using benford's law to detect fraudulent scientific data. *Journal of Applied Statistics*, 34:3, 321-329, DOI: 10.1080/02664760601004940
- Gutierrez, P. (2020, May 13). Coronavirus world map: which countries have the most cases and deaths? *The Guardian*. <https://the-guardian.com>
- Miller, S.J. (2015). Benford's law Theory and Application. Princeton University Press. New Jersey
- Silverstein, S. (2014). How Forensic Accountants Use Benford's Law To Detect Fraud. *Business Insider*. <https://businessinsider.com>
- Stephannie (2016). Benford's Law (the first digit law): Simple definition, examples. <https://www.statisticshowto.com>
- World Health Organization Declares COVID-19 a 'Pandemic.' Here's What That Means. *Times*. <https://time.com>

Covid-19: Effects of Isolation

S. Harinee, Department of Biotechnology, Sri Venkateswara College of Engineering (Autonomous),
Sriperumbudur, Tamil Nadu, India

Abstract: The coronavirus irruption came to light-weight on day, 2019 once China knowing the planet Health Organisation of a cluster of cases of respiratory disorder of Associate in Nursing unknown cause in metropolis city in Hubei Province. During a brief time the malady unfold to extra Provinces in China, and to the remainder of the planet. The chief body has presently declared it an endemic. The virus has been named SARS-CoV-2 and additionally the malady is presently noted as COVID-19. This paper discusses hundreds concerning the psychopathy caused to the people because of isolation. Since there were no vaccines created till date social distancing was the sole real one interference followed throughout the planet. The paper describes concerning the virus's symptoms, interference and every one various basic facts that unit to be acknowledged by the people and put together offers some strategies to beat the results of psychopathy caused because of isolation.
Keywords: Covid-19, Pandemic, Metal malady, Social, Distancing.

Introduction

Coronavirus malady (COVID-19) is Associate in nursing disease caused by a freshly discovered coronavirus. Coronaviruses (CoVs), a biological group of the Coronaviridae family, square live positive strand polymer viruses with the foremost important ordination of all acknowledged RNA viruses (≥ 27 Kb). The genomic polymer is capped, polyadenylated Associate in Nursing concerning nucleocapsid proteins within an indoor particle. The envelope is roofed by the characteristic surface compound supermolecule that offers the virus particles their characteristic crown-like (Latin: corona) look All CoVs share a customary ordination organization where the replicase issue encompasses the 5'-two thirds of the ordination and is comprised of two overlapping open reading frames (ORFs), ORF1a and ORF1b that encipher for up to sixteen non-structural proteins. The matter region, that covers the 3'-third of the ordination, encodes the canonical set of structural supermolecule genes among the within the - spike (S) - envelope (E) - membrane (M) and nucleocapsid (N) - 3'. The matter region put together harbors several ORFs that unit interspersed on the structural compound writing genes. The quantity and placement of those accent ORFs vary between the CoV species.

Objectives of Study

- *To reveal an thorough browse concerning COVID-19.
- *To convey a top level view concerning the symptoms.
- *To discuss concerning status.
- *To provide strategies to treat psychopathy.

Effect on Humans

In humans, CoV infections unit within the foremost concerning metabolism diseases that area unit thought-about to possess AN oversized impact on the economy because of reduced productivity of the operative population. Currently, seven coronaviruses that cause malady in humans are discovered. Four of these unit typically current and a pair of have caused epidemics of severe acute disease. Human Coronavirus varieties Coronaviruses unit named for the crown-like spikes on their surface. There unit four main sub-groupings of coronaviruses, noted as alpha, beta, gamma, and delta.

Common Human Coronaviruses

*229E (alpha coronavirus), *NL63 (alpha coronavirus), *OC43 (beta coronavirus), *HKU1 (beta coronavirus)

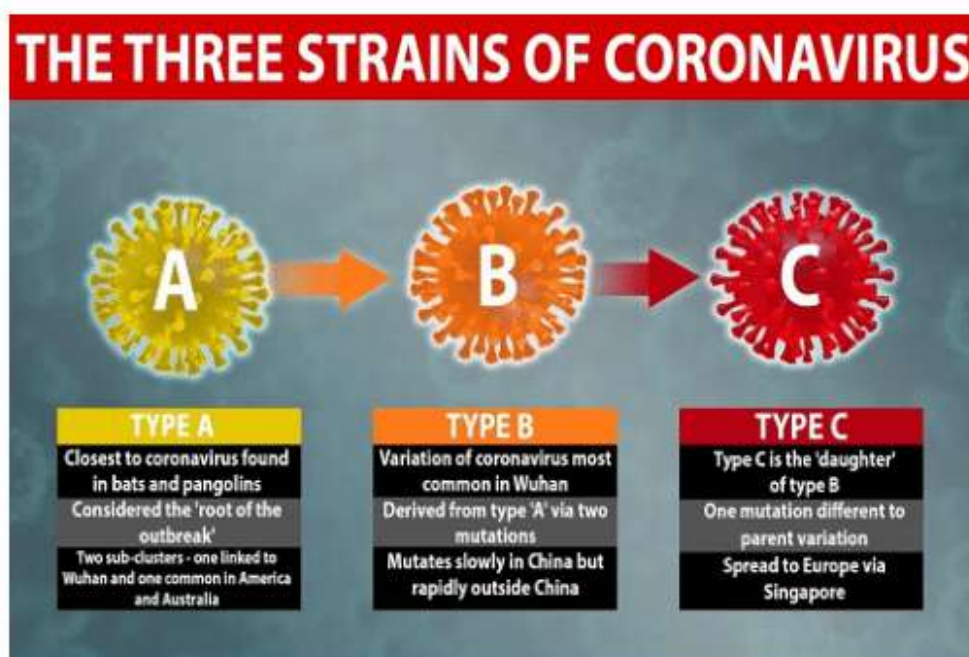
Other Human Coronaviruses

MERS-CoV is the beta coronavirus that causes geographical area metabolism Syndrome, or MERS

SARS-CoV is the beta coronavirus that causes severe acute metabolism syndrome, or SARS. *SARS-CoV-2 is the novel coronavirus that causes coronavirus malady 2019, or COVID-19.

People round the world typically get infected with human coronaviruses 229E, NL63, OC43, and HKU1. Sometimes coronaviruses that infect animals can evolve and build people sick and become a fresh human

coronavirus. Three recent samples of this are 2019-



Using genetic network techniques, the scientists analyzed the first 160 complete virus genomes from human patients around the world between 24 December 2019 and 4 March 2020. Together with researchers from Germany, they mapped some of the original spread of the Coronavirus through its mutations, and successfully reconstructed an early “evolutionary paths” of the Covid-19.

ZONAL CLASSIFICATION

The Government Divided the entire nation into three zones – Green Zone, Red Zone, Orange Zone, relaxation will be allowed accordingly.

Red zone (Hotspots) – districts with high doubling rate and high number of active cases

Orange zone (Non-hotspots) – districts with fewer cases

Green zone – districts without confirmed cases or without new cases in last 21 days” [7]

Research and Treatment:

“In Rajasthan, a aggregate of anti-malaria, anti-swine flu and anti-HIV pills resulted in the healing of three sufferers in March. In the equal month, the Indian Institute of Chemical Technology, the Council of Scientific and Industrial Research (CSIR) and Cipla launched a joint project to enhance anti-COVID-19 drugs. Another Indian firm, Stem peutics, introduced plans to introduce a stem cell-based agent for treating COVID-19 sufferers in imperative situation” [7]

In March, a startup incubated in Pune's SciTech Park added 'Airon', a bad ion generator successful of decreasing a room's viral load via 99.7%. In April, cash for a variety of preventive sellers have been launched to provoke research ”[7].“On 23 March, the National Task Force for COVID-19 constituted via the ICMR endorsed the use of hydroxychloroquine for the therapy of high-risk cases”[7]. “According to estimates, India has round 40,000 ventilators, of which 8,432 are with the public sector. Various Indian PSUs, corporations and startups, which include DRDO and ISRO, have considering the fact that repurposed their manufacturing traces to manufacture time-honored PPEs, full physique fits and ventilators. They are additionally designing less expensive or cell clinical equipment. The focal point used to be to enlarge the manufacturing of low-cost, compact and transportable ventilators that may want to cater to more than one sufferers at a time. This led to the advent of some of the world's smallest and most inexpensive ventilators. The authorities goals to double the modern potential of ventilators through June 2020 with the help from PSUs. The authorities has additionally requested foremost non-public automakers to discover the opportunity of manufacturing ventilators at their plants. Maruti Suzuki, in collaboration with AgVa Healthcare, will provide 10,000 ventilators until give up of the May.From nil in close to past, India used to be producing round 200,000

PPE kits and 250,000 N95 masks per day in May 2020”[7].
 “The Centre for Cellular and Molecular Biology has been working on genome sequencing of COVID-19.”[7].

“Pune-based Serum Institute of India introduced that it would follow for medical trials of sure lines from Drug Controller General of India (DCGI) in April. As per organisation president Adar Poonawalla, a vaccine for COVID-19 will be delivered inside a year. However, it might also no longer be high quality on 20 to 30% people. Two different corporations are additionally attempting to enhance a vaccine: Zydus Cadila, which is replicating viral vector and creating a DNA plasmid vaccine and Hyderabad-based Bharat Biotech, in collaboration with US based totally FluGen, which is looking ahead to the first scientific trials of a nasal vaccine through late 2020. As of late February, the Serum Institute of India had begun animal trials of vaccine candidates, accompanied with the aid of Zydus Cadila in March. ICMR partnered with Bharat Biotech in May to boost COVID vaccine totally in India Till May, there had been over 30 candidates of COVID-19 vaccine in improvement in India, many of which have been already in pre-clinical tests”[7]. “On 12 April, the ICMR invited fitness establishments and hospitals to take part in trials of convalescent plasma remedy and plasma alternate therapy. Later, the ICMR submitted a listing of such institutes to the DCGI to begin trials which the DCGI authorised Several states have been allowed through ICMR to begin medical trials of the plasma therapy. In Delhi, a 49-year-old man who used to be on ventilator assist grew to become the first affected person in the country, who recovered thru plasma remedy in April. Delhi CM Arvind Kejriwal stated that the preliminary effects of the plasma remedy cure on 4 sufferers gave advantageous and encouraging results, including that they had determined to behavior it on three greater patients”[7].” However, the ICMR later noted that there is no sturdy proof to guide convalescent plasma remedy as a hobbies therapy, describing it is as an rising and experimental therapy. It has some risks, which consist of life-threatening hypersensitive reactions and lung injuries. The ICMR have for the reason that began multi-centre medical trials to make sure the treatment's”[7]

What Are The Symptoms?

“Doctors are studying new matters about this virus every day. So far, we understand that COVID-19 may additionally not within the beginning purpose any signs for a few people. You may additionally raise the virus for 2 days or up to 2 weeks Trusted Source before you observe symptoms. Some frequent signs and symptoms that are especially linked to COVID-19 include: shortness of breath, having a cough that receives extra extreme over time, a low-grade fever that often will increase in temperature, fatigue”[6]“Less frequent signs and symptoms include: chills, repeated shaking with chills ,sore throat ,headache ,muscle aches and pains, loss of taste, loss of smell”[6]“These signs and symptoms may additionally come to be greater extreme in some people. Call emergency scientific offerings if you or a person you look after have any of the subsequent symptoms :trouble breathing, blue lips or face ,persistent ache or strain within the chest, confusion immoderate drowsiness”[6].”The full listing of signs and symptoms is nevertheless being investigated with the help of the Centers for Disease Control and Prevention (CDC)Trusted Source”[6]

“We’re nevertheless gaining knowledge of about whether or not the 2019 coronavirus is bigger or much less lethal than the seasonal flu, This is challenging to make a decision thanks to the very fact the big variety of whole instances (including slight instances in citizenry who don’t are trying to find remedy or get tested) is unknown”[6] .”However, early proof suggests that this coronavirus motives extra deaths than the seasonal flu. An estimated 0.04 to 0.2 percent Trusted Source of humans who developed the flu at some stage within the 2019-2020 flu season within the us died as of March 14, 2020. This is often in contrast to five .4 percentage of those with a tested case of COVID-19 within the us, in accordance to the CDC Trusted Source. Here are some frequent signs and symptoms of the flu: cough, runny or stuffy nose, sneezing, sore throat, fever, headache, fatigue, chills, body aches”[6].

Self-Care

If you're feeling sick you'd wish to rest, drink several fluid, and eat nutrient food. Confine extremely separate house from totally different relations, and use a fanatical toilet if potential. Clean and modify oftentimes touched surfaces. Everyone should keep a healthy life-style reception. Maintain a healthy diet, sleep, keep active, and build social contact with blue-eyed ones through the phone or web. youngsters wish further love and a spotlight from adults throughout powerful times. Keep to regular routines and schedules the utmost quantity as potential. It is ancient to feel sad, stressed, or confused throughout a crisis. lecture folks you trust, like friends and family, can help. If you're feeling powerless , consult a doctor or counsellor.

Mind Control: Managing Your Condition Throughout Covid-19

When folks raise one another the question 'How you doing' and really usually we tend to are expression mindlessly replying fine. the particular fact of matter is we have got a bent to undertake to not appear to be fine presently, none folks area unit fine. It's a scary time we have got a bent to any or all feel anxious.

terribly important that we have got a bent to understand the underlying dynamic of our body and thus the way it affects our mind by 'Understanding anxiety response'. For higher understanding lets jump into the quantity of primitive they resort chiefly in cave, the tribe cluster where the protection was good, at intervals the evening they'll positively come to subside the dark as a results of we have got a bent to don't have an honest sensory system for handling dark. They else rest at intervals the cave for relaxation as our biological machinery wishes it. They go wild will trying foods and are available back to ancient mood additionally. There unit of measurement 2 extreme things explained world organization agency acts as a predator suddenly appears and this person's life is in peril or likely a chance fully totally different modes area unit kicked of our machinery. they're sympathetic system (short term survival system) and parasympathetic nervous system(relaxation mood).

Effects of Isolation

"One of the explanations that living in isolation is difficult"[2] is as a results of humans area unit social creatures. many people that have lived in isolated environments like researchers stationed in continent world organization agency report that loneliness is additionally the foremost powerful an area of the duty. Loneliness is additionally damaging to each our mental and physical health. Socially isolated folks area unit less able to upset trying things. They're else further presumably to feel depressed and can have problems method data. This successively can cause difficulties with decision-making and memory storage and recall. People who area unit lonely also are further susceptible to illness. Researchers found that a lonely person's system responds otherwise to fighting viruses, making them further presumably to develop associate illness. The impacts of social isolation attend pot once folks area unit placed in physically uninflected surroundings it'll wreck your sleep cycle. two of the key mechanisms for sleep cycle regulation, the endocrine endocrine and thus the brain's suprachiasmatic nucleus, this suggests that the time they need visiting sleep doesn't confine a extremely regular pattern and might shift day by day. People placed in isolation may experience hallucinations. the shortage of stimuli causes folks to misattribute internal thoughts and feelings as occurring at intervals the outer surroundings. primarily, hallucinations happen due to associate absence of brain stimulation. However, variety folks that are management in social isolation against their will may develop long condition conditions, like post-traumatic stress disorder (PTSD).But variety folks that have faced the challenge of being alone for associate extended quantity of a fast time may show personal growth – furthermore as emotional growth, feeling nearer to family and friends, and having a many strong perspective on life as a results of their experience.

Strategies for Managing Isolation

The shape of voluntary quarantine also can causes a strong deal of mental problems. Negative psychological consequences can embody anger, confusion, emotional exhaustion and tedium, quarantine may additionally return to be in post-demanding strain symptoms and depression to be able to closing nicely on the way facet the quantity of isolation.

I) Take Breaks From The News And Social Media

Make associate traditional habit of stepping an extended means from your computer and realistic phone from time to time. As soon as returning on-line, target information from good resources, not actually, sources for your social media feed .After associate specific purpose, it's further exasperating than informational. Certify the facility you're doing get is from respectable and non-sensationalist resources. In addition, assess what quantity is beneficial which is during an edge to scan in an exceptionally day, and goal to remain thereto limit. it's exasperating to concentrate to concerning the crisis and see photos repeatedly. You don't need to absorb everything created by employing a 24/7 news cycle. plan to do the other activities you bear in mind to return some normalcy once again for your lifestyles the utmost quantity as accomplishable. Produce time to unwind and cue yourself that these.

II) Manage Your Expectations

"This is unlikely to be the writer's retreat that you simply just simply just while not a doubt have long dreamt of. the thought that intervals of quarantine may additionally bring new productivity implies we should always always typically enhance the bar, in preference to decrease it. don't underestimate the psychological perform and emotional load that this pandemic brings, or the impact it'll placed on your fruitfulness, a minimal of within the temporary term. bother concentrating, low motivation and a kingdom of distraction rectangular live to be expected. Adaptation will take time. Go truthful on yourself. As we've a bent to tend to settle into this new rhythm of remote work and isolation, we wish to be realistic within the goals we've"[2] a bent to possess a bent to line, every for ourselves et al in our charge.

III) Lookout of Yourself

"Try to get a stable basis for your intellectual nation and nicely-being by means of prioritizing your sleep, and practise smart sleep hygiene (for example, keep from blue lights before bed, and maintain a revenant around your sleep and wake times). Eat nicely (be acutely aware that you simply just simply just extremely is

inclined to the touch alcohol, or various indulgences, to manage strain this might be perceivable, but probably damaging within the protracted run). Exercise: it'll decrease your stress levels, will assist you raised regulate your feelings and enhance your sleep"[2]. Take deep breaths. Stretch. Meditate. plan to eat relatively well balanced meals, pass your frame usually, get legion sleep and intensely limit alcohol and medicines. this might facilitate boost your immunity and resilience.

IV) "Distress Tolerance Skills" For Being Alone:

Monitor yourself for signs of depression/stress ill like prolonged unhappiness, problem sleeping, intrusive recollections and/or feelings of despair. move to a trustworthy colleague or supervisor. Be hospitable seeking skilled facilitate if signs and symptoms persist or deteriorate over time. a fashion to manage moments of distress is to identify key mind or physical sensations that have a bent to form contributions for your cycle of misery and feelings of being flooded. Our thoughts "Why can't I concentrate?", feelings (frustration, worry, sadness), bodily sensations (tension, belly upset, jitters) and actions (inclusive of obsessively checking the foremost fashionable COVID statistics) each feed into and increase these negative emotional spirals. Addressing one aspect of this loop by means of, as associate "example, actively decreasing the bodily symptoms (I use instrumentality breathing: breathe for four counts, preserve for four, respire for four and hold for four, then repeat) can de-increase the cycle and assist you regain management"[2]. accept the misery you're feeling. in situ of collaborating on your usual escape approaches for avoiding uncomfortable feelings (whether it's bingeing TV, desensitizing out with alcohol, or whatever), plan to doing the opposite: follow the sensation . Watch the sensation . Noting but it's manifesting to your clenched muscular tissues or using imaging to clarify it ("this feeling isn't ME, it's very almost quite a cloud floating past within the sky"), may assist you detach from it slightly. Keep observant it till it clearly subsides..Turn your attention lower back to a challenge you'd adore to undertake to undertake and do to to at intervals this. it's a sincere inward task like that specialize to your breath, or partner outward mission like volunteering to help folks in wish at some purpose of the pandemic. Expect that the distressing feelings will return. But know, too, that by exploitation definitely facing them rather than make the foremost of from them, you're teaching yourself that you're sturdy enough to influence them.

V) Be Compassionate With Yourself And With Others

There is plenty of that we've a bent to cannot management immediately , however however we've a bent to ask ourselves throughout these difficult times will either provides a robust buffer to those tough "circumstances or amplify our distress. Moments of feeling engulfed typically company with huge thoughts, admire "I cannot do that," or "This is simply too onerous." This pandemic can cause a superb deal of stress for"[2] several folks, which we'll not be our greatest selves all the time. however we'll kindle facilitate or reach out once assistance is asked folks..2 Employers got to take into account permitting those affected to figure from home. Not solely can this facilitate to avoid tedium, however it'd conjointly forestall individuals from losing out financially - fears over loss of earnings will trigger stress. workers won't be at their best they'll profit additional from remote social support from their colleagues. You and your colleagues are doubtless to feel Brobdingnagian pressure given the potential surge in care demands, risk of infection and instrumentality shortages, among different stressors. Experiencing stress and also the emotions related to it are by no means a logo of weakness or a mirrored image on your ability to undertake to your job.

VI) Maintain Connections

Even the foremost introspective folks want "some sense of affiliation to others for our mental moreover as our physical health. several operating teams have created virtual forums wherever you'll contribute or simply sit back and luxuriate within the chatter. employees groups have instigated virtual low teams, on-line book clubs and co-working areas wherever you'll add the (virtual) presence of others. we've a bent to are in social isolation, however we'd like not feel alone. Reach bent people that are often notably isolated"[2]. one in every of the foremost distinguished ways during which individuals are asked to assist mitigate the COVID-19 pandemic is to observe social distancing. Which suggests remaining out of places wherever individuals meet or gather, and maintaining distance (approximately six feet or 2 meters) from others. Create new traditions for connecting often with friends, family and peers via transmission apps, etc. sign up in conjunction with your individuals. decision a devotee , friend or coworker. Send a text message, direct message or email. Use FaceTime or different video formats to speak .

VII Manage Uncertainty By Staying within the gift

"Take day by day because it comes and consider the items you'll management. heedfulness and meditation is sweet tools. This will altogether probability be a nerve-wracking time for all folks, and should take a look at the mental-health policies and practices of the varied analysis institutes, whilst it's testing plenty of else

within the earth . By clench sensible mental-health and well-being measures, and by relying on others once necessary, we'll defend ourselves and people around us “[2].

Scope of Study

It is a hard state of affairs during this pandemic. The invention of the vaccine has not taken place however, thus it's sensible for us to remain HOME to remain SAFE. tho' it's terribly onerous to undertake to to thus, and it causes mental issues the strategies admire taking breaks from the news and social media, managing uncertainty by staying within the gift, maintaining connections, being compassionate with yourself and with others, and different above strategies is followed to be at a stable state.

References

- [1].<https://www.sciencealert.com/isolation-has-profound-effects-on-the-human-body-and-brain-here-s-what-happenshttps://www.sciencealert.com/isolation-has-profound-effects-on-the-human-body-and-brain-here-s-what-happens>
- [2].<https://www.nature.com/articles/d41586-020-00933-5>
- [3].<https://www.thehindu.com/topic/coronavirus/>
- [4].<https://www.economist.com/science-and-technology/2020/04/29/the-pieces-of-the-puzzle-of-covid-19s-origin-are-coming-to-light>
- [5].<https://www.healio.com/psychiatry/practicemanagement/news/online/%7B250e2c9c-e510-4109-bb84-024660539c08%7D/covid-19s-mental-health-effects-by-age-group-children-college-students-working-age-adults-and-older-adults>
- [6].<https://www.healthline.com/health/coronavirus-covid-19#symptoms>
- [7].https://en.wikipedia.org/wiki/COVID-19_pandemic_in_India

Awareness, Attitudes, and Practices Related To Coronavirus (Covid 19) Pandemic among Public in Chennai City, India

Dr. C. Vijai, Assistant Professor, Department of Commerce, St. Peter's Institute of Higher Education and Research, Tamil Nadu, India ORCID: 0000-0003-0041-7466

S. M. Suryalakshmi, Assistant Professor, Department of Commerce, St. Peter's Institute of Higher Education and Research, Tamil Nadu, India

Abstract: The present study is intended to evaluate the awareness, attitudes, and practices towards coronavirus (COVID 19) among the public in Chennai City, India. A prospective study was conducted in Chennai City, India. A total number of 225 Respondents. (Male 138, Female 86 and Prefer not to say 1). Data were processed and analyzed by the Statistical Package for social science. Descriptively analysis and chi square was performed. P values < 0.05 were considered statistically significant. A total of 255 respondents, the majority was male and it is found that the majority of respondents are below 31-40 years of age group. And 56.0% of the respondents are from the urban areas. The majority of respondents (94.7%) having awareness about Covid 19. The respondents following social distance, wearing the mask and feel better lockdown (79 %). The majority of the respondents say very worried about the impact of coronavirus in personal life, economic, and society. This study highlights the Awareness about coronavirus, social distance, the lockdown days, trouble getting the basic necessities, impact on work, and national economy. The majority of the respondents say very worried about the impact of coronavirus in personal life, economic, and society.

Keywords: Corona virus (COVID 19), Pandemic, Social Distance, Lock Down, Work from home.

Introduction

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus (www.who.in) Coronaviruses are a family of viruses that can cause illnesses such as the common cold, severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). In 2019, a new coronavirus was identified as the cause of a disease outbreak that originated in China (www.mayoclinic.org) On 12 January 2020, the World Health Organization (WHO) confirmed that a novel coronavirus was the cause of a respiratory illness in a cluster of people in Wuhan City, Hubei Province, China, which was reported to the WHO on 31 December 2019(www.elsevier.com)

On 30 January, India reported its first case of COVID-19 in Kerala, which rose to three cases by 3 February; all were students who had returned from Wuhan, China.(Davyreid 2020) On 24 March 2020, the Government of India under Prime Minister Narendra Modi ordered a nationwide lockdown for 21 days, limiting movement of the entire 1.3 billion population of India as a preventive measure against the COVID-19 pandemic in India.(Gettleman,) The lockdown restricts people from stepping out of their homes. All transport services—road, air and rail—were suspended, with exceptions for transportation of essential goods, fire, police and emergency services. Educational institutions, industrial establishments and hospitality services were also suspended. Services such as food shops, banks and ATMs, petrol pumps, other essentials and their manufacturing are exempted (Tripathi, R. 2020)

There's currently no treatment specifically approved for COVID-19, and no cure for an infection, although treatments and vaccines are currently under study. Instead, treatment focuses on managing symptoms as the virus runs its course (Jewell Tim 2020)

SYMPTOMS OF CORONAVIRUS (COVID-19)

COVID-19 symptoms range from mild to severe. It takes 2-14 days after exposure for symptoms to develop. Symptoms may include:

- fever
- cough
- shortness of breath
- chills
- repeated shaking with chills
- muscle pain
- headache
- sore throat
- new loss of taste or smell

Those with weakened immune systems may develop more serious symptoms, like pneumonia or bronchitis. You may never develop symptoms after being exposed to COVID-19. So far, most confirmed cases are in adults, but

some children have been infected. There is no evidence that children are at greater risk for getting the virus (Familydoctor.org). According to researchers in China, these were the most common symptoms among people who had COVID-19:

- Fever 99%
- Fatigue 70%
- Cough 59%
- Lack of appetite 40%
- Body aches 35%
- Shortness of breath 31%
- Mucus/phlegm 27%

Some people who are hospitalized for COVID-19 have also had dangerous blood clots, including in their legs, lungs, and arteries (Cassobhoy 2020)

Coronavirus in India

The spread of novel coronavirus in India has created panic in the country. After the first confirmed positive case was reported on 30th January 2020. In Kerala, The western state of Maharashtra reported the highest number of coronavirus (COVID-19) cases as of May 4, 2020, with 12,974 cases. The western state of Gujarat and the capital city of Delhi trailed behind. As of that day, there were a total of around 42 thousand confirmed infections across India. The country went into lockdown on March 25, making it the largest lockdown in the world, restricting 1.3 billion people. The lockdown had been further extended for another two weeks starting from May 4, 2020. As per the new guidelines, the country was divided into red, orange and green zones. Red zones are designated as the hotspots and will not see any relaxations in comparison to the areas considered less prone for the spread of the virus (Diwanji 2020)

CORONAVIRUS (COVID-19) PANDEMIC IN TAMIL NADU

The first case of the COVID-19 pandemic in the Indian state of Tamil Nadu was reported on 7 March 2020. The Department of Health and Family Welfare has confirmed a total of 3,550 cases, including 31 deaths and 1,409 recoveries, as of 4 May 2020. In May, the Koyambedu Wholesale Market Complex emerged as a new hotspot in Chennai. By 3 May, 113 infections were traced back to the market (<https://nhmtm.maps.arcgis.com>)

Major Events in Coronavirus (Covid19) Pandemic in Tamil Nadu till 4th May 2020.

- ❖ 07 March First confirmed case
- ❖ 15 March Closure of commercial establishments, schools and colleges
- ❖ 20 March State borders closed
- ❖ 22 March Janta Curfew - Nationwide
- ❖ 24 March Section 144 imposed
- ❖ 25 March First reported death Nationwide lockdown imposed till 14 April
- ❖ 31 March 100 confirmed cases First case identified from Tablighi Jamaat cluster
- ❖ 11 April 10 reported deaths
- ❖ 12 April 1000 confirmed cases
- ❖ 14 April Nationwide lockdown extended till 3 May
- ❖ 15 April 100 reported recoveries
- ❖ 25 April Reported recoveries surpassed active cases
- ❖ 28 April 2000 confirmed cases,
- ❖ 3 May 3000 confirmed cases

Methods

Study Design and Setting:

A survey was conducted during 21st March to 30th April 2020 in Chennai City, India.

Sample and Sampling Technique:

A convenience method of sampling was adopted and a total of 225 agreed to participate and included in the study.

Data Collection

There are two types of data collections.

- ❖ Primary data collection
- ❖ Secondary data collection

Primary data

Primary data is first had information it was collected from the respondent by using a Questionnaire. The researcher has got the primary data through survey method.

Secondary data

The secondary data was collected through the secondary sources like company records, company Websites, magazine, and Newspaper.

Data analysis:

Data was processed by the Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics were used to describe all variables. Mean and standard deviation was used to identify mean scores for different studied domains. The Chi-square test was used to test the hypothesis. P value < 0.05 was considered statistically significant.

I. Percentage Analysis

Variables	Category	No. Of Respondents	Percentage
Gender	Male	138	61.3
	Female	86	38.2
	Prefer not to say	1	4
	Total	225	100
Age	31-40	92	40.9
	41-50	34	15.1
	Above 50	16	7.1
	Up to 30	83	36.9
	Total	225	100
Literacy Level	Degree	32	14.2
	P.G and above	182	80.9
	Up to H.Sc	11	4.9
	Total	225	100
Monthly income (Rs)	Up to 15000	79	35.1
	15001-25000	36	16.00
	25001-35000	34	15.1
	Above 35000	76	33.8
	Total	225	100
Area of Residence	Rural	68	30.2
	Semi-urban	31	13.8
	Urban	126	56.0
	Total	225	100.0
Awareness about coronavirus disease	Maybe	7	3.1
	No	5	2.2
	Yes	213	94.7
	Total	225	100.0
Do you agree coronavirus disease very dangerous	Maybe	15	6.7
	No	9	4.0
	Yes	201	89.3
	Total	225	100.0
Do you agree need to wear a mask every time you step out	Maybe	21	9.3
	No	19	8.4

of the home?	Yes	185	82.2
	Total	225	100.0
Can a face mask protect you from coronavirus?	Maybe	72	32.0
	No	42	18.7
	Yes	111	49.3
	Total	225	100.0
In recent days, have you gone to any crowded place?	Maybe	9	4.0
	No	198	88.0
	Yes	18	8.0
	Total	225	100.0
How does the coronavirus spread?	Both	161	71.6
	Direct contact	52	23.1
	Indirect contact	12	5.3
	Total	225	100.0
How do you feel social distance?	About the same	22	9.8
	Better	89	39.6
	Much better	76	33.8
	Much worse	16	7.1
	Worse	22	9.8
	Total	225	100.0
How do you feel lock down?	About the same	27	12.0
	Better	79	35.1
	Much better	76	33.8
	Much worse	19	8.4
	Worse	24	10.7
	Total	225	100.0
Have you taken up any hobbies or been reading any good books	Maybe	25	11.1
	No	32	14.2
	Yes	168	74.7
	Total	225	100.0
Is self-control necessary to prevent the spread of coronavirus	No	9	4.0
	Yes	205	91.1
	Total	225	100.0
Social media both a blessing and a cures during coronavirus pandemic	1.00	19	8.4
	2.00	3	1.3
	3.00	55	24.4
	4.00	54	24.0
	5.00	94	41.8
	Total	225	100.0
Are you having trouble getting basic necessities?	Maybe	33	14.7
	No	102	45.3
	Yes	90	40.0
	Total	225	100.0
How worried you about the impact of coronavirus on your	Extremely worried	72	32.0
	Not at all worried	13	5.8

company?	Not so worried	15	6.7
	Somewhat worried	52	23.1
	Very worried	73	32.4
	Total		100.0
How worried you about the impact of coronavirus on you?	Extremely worried	72	32.0
	Not at all worried	13	1.3
	Not so worried	15	8.0
	Somewhat worried	52	25.8
	Very worried	73	32.9
	Total	225	100.0
Do you do your office work from home?	Maybe	19	8.4
	No	59	26.2
	Yes	147	65.3
	Total	225	100.0
Are you having trouble work from home?	Maybe	35	15.6
	No	101	44.9
	Yes	89	39.6
	Total	225	100.0
Do you have all the equipment you need in order to do your work from home?	Maybe	31	13.8
	No	96	42.7
	Yes	98	43.6
	Total	225	100.0
Do you agree coronavirus outbreak is impacted the society?	maybe	16	7.1
	no	7	3.1
	yes	202	89.8
	Total	225	100.0
Do you have a dedicated work space where you can work at your home?	Maybe	29	12.9
	No	83	36.9
	Yes	113	50.2
	Total	225	100.0
Do you agree coronavirus outbreak is impacted the national economy?	Maybe	7	3.1
	No	10	4.4
	Yes	208	92.4
	Total	225	100.0
Do you agree government does well in the fight against COVID19	Agree	66	29.3
	Disagree	14	6.2
	Neutral	34	15.1
	Strongly agree	83	36.9

	Strongly disagree	28	12.4
	Total	225	100.0
Do have confidence that India can win the battle against the COVID 19 virus	Maybe	28	12.4
	No	8	3.6
	Yes	189	84.0
	Total	225	100.0

Interpretations

- ❖ The respondents of 61.3 percent of respondents are male and 38.2 percent of respondents are female 4 percent of respondents are prefer not to say in awareness of coronavirus. It is found that the majority of respondents are male.
- ❖ The respondents of 36.9percent of respondents are below 30 years, 40.9 percent of respondents are 31-40 years, 15.1 percent of respondents are between 41-50 years and 7.1 percent of respondents are above 50 years. It is found that the majority of respondents are below 31-40 years age group.
- ❖ The respondents of 35.1 % are getting monthly income of up to 15000, 16.0% of the respondents getting 15001-25000, 15.1% of the respondents getting 25001-35000, and 33.8% of the respondents getting above 35000. It is found that majority of the respondents getting monthly income Up to 15000 of the respondents.
- ❖ The respondents of 30.2%of the respondents are in rural area, 13.8% of the respondents are in semi-urban area, and 56.0% of the respondents are from urban area. It is found that the majority of respondents are urban area.
- ❖ The respondents of 3.1% say they have awareness about coronavirus diseases, 2.2%says no, 94.7% of the respondents say yes. It is found that the majority of respondents having awareness yes.
- ❖ The respondents of 6.7% of the respondents are agreed coronavirus disease very dangerous says may be, 4.0% says no, 89.3% says yes. It is found that majority of the respondents are agreed it is very dangerous says yes.
- ❖ The respondents of 9.3% says agreed to wear a mask every time you step out of the home, 8.4% of the respondents says no, 82.2% of the respondents says yes. It is found that the majority of the respondents are agreed to wear mask every time step out of home says yes.
- ❖ The respondents may be says 32.0% of the respondents says face mask protect you from coronavirus, 18.7% of the respondents says no, 49.3% of the respondents says yes. It is found that the majority of the respondents say yes the mask is protecting them.
- ❖ The respondent 4.0% says gone to any crowded place says may be, 88.0% says no, 8.0% says yes. It is found that the majority of the respondents say no.
- ❖ The respondents says the coronavirus will spread, 71.6% says direct contact, 23.1% says through indirect contact and 5.3% says both contacts, it is found that the majority of the respondents says both.
- ❖ The respondents they feel social distance through lockdown, 9.8% of the respondents says better ,39.6% says much better, 33.8% says much worse, 7.1% says worse, and 9.8% says much better. It is found that the respondents are feeling social distance in better.
- ❖ The respondents how they feel lock down better 79%, 76% says much better, 19% much worse, worse 24%. It is found that the respondents say lock down feel better 79%.

- ❖ The respondents taken any hobbies or been reading any good books says may be as 12.0%, no as 35.1%, yes says 33.8%. It is found that the majority of the respondents say yes.
- ❖ The respondents are self - control necessary to prevent the spread of coronavirus says may be 4.9%, no says 4.0% yes says 91.1%. It is found that majority of the respondents says yes.
- ❖ The respondents says social media both a blessing and curse during coronavirus pandemic 1.00 in 8.4%, 2.00 as 1.3%, 3.00 in 24.4% 4.00 in 24.0% and 5.00 as 41.8%. It is found that the majority of the respondents say 5.00.
- ❖ The respondents say trouble getting basic necessities says may be 14.7%, 45.3% says no, 40.0% says yes. It is found that majority of the respondents says no.
- ❖ The respondents are worried about the impact of coronavirus on you 32.0% says extremely worried, 1.3% says worried, 8.0% says not so worried, 25.8% says somewhat worried, 32.9% says very worried. It is found that the majority of the respondents says very worried
- ❖ The respondents are worried about the impact of coronavirus in company 32.0% says extremely worried, 5.8% says worried, 6.7% says not so worried, 23.1% says somewhat worried, 32.4% says very worried. It is found that the majority of the respondents say very worried.
- ❖ The respondents are says do you do your office work from home says may be 8.4%, 26.2% says no, 65.3% says yes. It is found that the majority of the respondents say yes.
- ❖ The respondents are having trouble work from home may be in 15.6%, 44.9% says no, 39.6% says yes. It is found that majority of the respondents says no
- ❖ The respondents have all the equipment you need in order to do you work from home as may be 13.8%, no 42.7%, yes 43.6%. It is found that the majority of the respondents say yes.
- ❖ The respondents have a dedicated work space where you can work at home as 12.9% says may be, 36.9% says no, 50.2% says yes. It is found that the majority of the respondents say yes.
- ❖ The respondents agree coronavirus outbreak is impacted in the national economy as 3.1% says may be, 4.4% says no, 92.4% says yes. The majority of the respondents say yes.
- ❖ The respondents agree coronavirus outbreak is impacted in the society as 7.1% says may be, 3.1% says no, 89.8% says yes. The majority of the respondents say yes.
- ❖ The respondents are agreed government well in fight against COVID 19. 32.0% says agree, 5.8% says disagree, 6.7% says neutral, 23.1% strongly disagree, 32.4% strongly disagree. The majority of the respondents says strongly disagree.
- ❖ The respondents say confidence that India win battle of COVID-19 virus. 12.4% says maybe, 3.6% says no, 84.0% says yes.

II.CHI-Square Analysis

S.No	H0 : Null-Hypotheses	Test Statistics	P-Value	Accepted/ Rejected
1.	Gender is not associated with Awareness about Corona virus	Chi-Square Test	.855	Accepted
2.	Gender Awareness about is not associated with spread of corona virus	Chi-Square Test	.226	Accepted
3.	Gender and is not associated with social distance	Chi-Square Test	.709	Accepted
4.	Gender is not associated with lock down	Chi-Square Test	.064	Accepted

5.	Gender is not associated with hobbies on the lock down days	Chi-Square Test	.040	Rejected
6.	Gender is not associated with self-control to prevent the spread of corona virus	Chi-Square Test	.689	Accepted
7.	Gender is not associated with Social media during corona virus pandemic	Chi-Square Test	.130	Accepted
8.	Gender is not associated with trouble getting the basic necessities	Chi-Square Test	.219	Accepted
9.	Gender is not associated with impact of your companies	Chi-Square Test	.327	Accepted
10.	Gender and is not associated with impact on work	Chi-Square Test	.421	Accepted
11.	Gender is not associated with work from home	Chi-Square Test	.462	Accepted
12.	Gender is not associated with trouble work from home	Chi-Square Test	.517	Accepted
13.	Gender is not associated with equipment do your work from home	Chi-Square Test	.241	Accepted
14.	Gender is not associated with work space at your home	Chi-Square Test	.697	Accepted
15.	Gender is not associated with national economy	Chi-Square Test	.665	Accepted
16.	Gender is not associated with impacted society	Chi-Square Test	.879	Accepted
17.	Gender is not associated with government fight against COVID-19	Chi-Square Test	.024	Rejected
18.	Education and Awareness about Corona virus disease (COVID-19)	Chi-Square Test	.000	Rejected
19.	Education is not associated with agree corona virus disease very dangerous	Chi-Square Test	.484	Accepted
20.	Education is not associated with social distance	Chi-Square Test	.180	Accepted
21.	Education is not associated with lock down	Chi-Square Test	.813	Accepted
22.	Occupation is not associated with impacted the national economy	Chi-Square Test	.000	Rejected
23.	Occupation is not associated with impacted society	Chi-Square Test	.000	Rejected
24.	Occupation is not associated with government fight against COVID-19	Chi-Square Test	.272	Accepted

The null hypothesis is rejected at 5% level of significance.

Result of Hypothesis

1. The calculated chi-square value is greater than table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
2. The chi-square statistics the value is greater than the table value of gender and awareness about coronavirus spread and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
3. The calculated chi-square value of gender and feel about social distance is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
4. The chi-square statistics the value of gender and feel about the lockdown, there is no significant at a 5% level. Hence, the null hypothesis is accepted.

5. Hence, it is calculated chi-square of gender and taken up any hobbies on lockdown days is less than the table value 0.05. The null hypothesis is rejected at 5% level of significance.
6. The calculated chi-square value is lesser than the table value of gender and self-control to prevent the spread of coronavirus is more than the table value and the result is a significant at a 5% level. Hence, the null hypothesis is accepted.
7. The chi-square statistics the value of gender and opinion about social media during coronavirus pandemic, there is no significant at a 5% level. Hence, the null hypothesis is accepted.
8. The calculated chi-square value of gender and having trouble getting the basic necessities the table value and the result is no significant at 5% level. Hence, the null hypothesis is accepted.
9. The chi-square statistics the value of gender worried about the impact of corona-virus table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
10. Hence, it is calculated chi-square value is gender and worried about the impact of coronavirus on your work is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
11. The calculated chi-square value of gender and work from home is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
12. Hence, it is calculated chi-square value of gender and trouble work from home is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
13. The calculated chi-square value of gender and equipment do your work from house is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
14. The calculated chi-square value of gender and workspace at your home is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
15. Hence, it is calculated chi-square value of gender opinion about the national economy is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
16. The calculated chi-square value of gender opinion about impacted society is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
17. The calculated chi-square value of gender opinion about government fight against COVID -19 is less than the table value and the result is significant at a 5% level. Hence, the null hypothesis is rejected.
18. The calculated chi-square value of education and awareness about coronavirus disease (COVID-19) is less than the table value and the result is significant at a 5% level. Hence, the null hypothesis is rejected.
19. The calculated chi-square value of education and agree coronavirus disease very dangerous is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
20. Hence, it is calculated chi-square value of education opinion about social distance is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
21. The calculated chi-square value of education and feel lockdown is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.
22. The calculated value of chi-square in occupation and impacted the national economy is less than the table value and the result is a significant at a 5% level. Hence, the null hypothesis is rejected.
23. The calculated value of chi-square in occupation and impacted society is less than the table value and the result is a significant at a 5% level. Hence, the null hypothesis is rejected.
24. The calculated value of chi-square in occupation opinion about government fight against COVID -19 is greater than the table value and the result is no significant at a 5% level. Hence, the null hypothesis is accepted.

Indian Government Response to The Coronavirus (Covid-19) Pandemic

Government of India is taking all necessary steps to ensure that we are prepared well to face the challenge and threat posed by the growing pandemic of COVID-19 the Corona Virus (www.mygov.in) The Indian state governments have responded to the **COVID-19 pandemic in India** with various declarations of emergency, closure of institutions and public meeting places, and other restrictions intended to contain the spread of the virus (<https://en.wikipedia.org>)

Prime Minister Narendra Modi's government was quick to recommend residents avoid or postpone mass gatherings until the the virus is contained. The Ministry of External Affairs postponed the Indian cricket league and state authorities are shutting schools, gyms and swimming pools in the worst-hit regions. Such responses are "good and impressive," according to the WHO. "India is doing quite well," said the WHO Representative, Henk Bekedam. (Charlton, E 2019)

CORONAVIRUS (COVID-19) PANDEMIC LOCKDOWN IN INDIA**JANATA CURFEW**

The Janata Curfew was a 14-hour curfew (from 7 a.m. to 9 p.m.) that was scheduled on 22 March 2020, prior to the total lockdown (Pandey, A., & 2020)

- ❖ First 21 days (25 March – 14 April)
- ❖ Extension (15 April – 3 May)
- ❖ Additional extension (4 May – 17 May)

AAROGYA SETU

The stated purpose of this app is to spread awareness of COVID-19 and to connect essential COVID-19 - related health services to the people of India (Banerjea, A 2020)

Aarogya Setu has four sections:

- Your Status (tells the risk of getting COVID-19 for the user),
- Self Assess (lets the user know the risk of being infected),
- COVID-19 Update (gives updates on local and national COVID-19 cases) and
- E-pass (yet to be operationalized).(<https://news.jagatgururampalji.org/>)

ZONES

The zonal classification of hotspot, non-hotspot and green zones are being done per the Ministry of Health and Family Welfare's criteria (<https://economictimes.indiatimes.com>)

Zone	Definition
Red	hotspot districts that contribute contributing to more than 80% of cases in the state or with doubling rate less than four days
Orange	districts without new cases in last 14 days
Green	Non-infected districts. A hotspot district can move to the green zone if it reports no new cases in the last 28 days.

Source: https://en.wikipedia.org/wiki/COVID-19_pandemic_in_Tamil_Nadu

Conclusion

Based on the above results, the majority of the respondents were the high level of awareness, attitudes, and practices towards coronavirus. Furthermore, there was no significant difference in gender and Awareness, social distance, lockdown, Social media, basic necessities, and impact on economic, and work from home, the male has a better attitude towards coronavirus. It was concluded that the majority of the respondents say very worried about the impact of coronavirus in personal life, economic, and society. However, Continuous awareness Campaigns about new emerging diseases for people and to improve their knowledge and attitude toward emerging infection trends. The need clarification to prevent and manage coronavirus.

References

- Banerjea, A. (2020, April 02). Govt launches 'Aarogya Setu', a coronavirus tracker app: All you need to know. Retrieved from <https://www.livemint.com/technology/apps/govt-launches-aarogya-setu-a-coronavirus-tracker-app-all-you-need-to-know-11585821224138.html>
- Cassobhoy, A. (2020, May 01). Coronavirus and COVID-19: What You Should Know. Retrieved from <https://www.webmd.com/lung/coronavirus>
- Charlton, E. (n.d.). How India is responding to COVID-19: Quarantine, travel limits and tests. Retrieved from <https://www.weforum.org/agenda/2020/03/quarantine-india-covid-19-coronavirus/>
- Community, T. E. (2020, May 01). Novel Coronavirus Information Center. Retrieved from <https://www.elsevier.com/connect/coronavirus-information-center>

- Coronavirus. (n.d.). Retrieved from https://www.who.int/health-topics/coronavirus#tab=tab_1
- Coronavirus disease 2019. (2020, May 03). Retrieved from https://en.wikipedia.org/wiki/Coronavirus_disease_2019
- Coronavirus disease 2019 (COVID-19). (2020, April 24). Retrieved from <https://www.mayoclinic.org/diseases-conditions/coronavirus/symptoms-causes/syc-20479963>
- Diwanji, S. (2020, May 04). Coronavirus cases in India by state. Retrieved from <https://www.statista.com/statistics/1103458/india-novel-coronavirus-covid-19-cases-by-state/>
- Gettleman, J., & Schultz, K. (2020, March 24). Modi Orders 3-Week Total Lockdown for All 1.3 Billion Indians. Retrieved from <https://www.nytimes.com/2020/03/24/world/asia/india-coronavirus-lockdown.html>
- Indian local government response to the COVID-19 pandemic. (2020, May 05). Retrieved from https://en.wikipedia.org/wiki/Indian_local_government_response_to_the_COVID-19_pandemic
- Jewell, T. (2020, April 30). Everything You Should Know About the 2019 Coronavirus and COVID-19. Retrieved from <https://www.healthline.com/health/coronavirus-covid-19#treatment>
- NEWSSA News Channel, & Factual News. (2020, April 20). Aarogya Setu App Download: Features, Details, Benefits, Review: SA News. Retrieved from <https://news.jagatgururampalji.org/download-aarogya-setu-app/>
- Online, E. (2020, May 01). Government identifies 170 Covid-19 hotspots: Here's the full list. Retrieved from <https://economictimes.indiatimes.com/news/politics-and-nation/govts-plan-to-contain-local-outbreak-is-yielding-results-lav-agarwal/articleshow/75159535.cms>
- Pandey, A., & Bhasin, S. (2020, March 23). UP Officials Seen With Crowd Amid "Janata Curfew". Then, A Clarification. Retrieved from <https://www.ndtv.com/india-news/up-officials-seen-with-crowd-amid-janata-curfew-then-a-clarification-2198993>
- Staff, F. E. (2020, April 29). Coronavirus: Symptoms, Diagnosis, Treatment. Retrieved from <https://familydoctor.org/condition/coronavirus/>
- Tamil Nadu Government's Response to COVID-19. (2020, April 29). Retrieved from <https://www.prsindia.org/theprsblog/tamil-nadu-government's-response-covid-19>
- Tripathi, R. (2020, March 25). India's 21-day lockdown to counter coronavirus: What's exempt, what's not. Retrieved from <https://economictimes.indiatimes.com/news/politics-and-nation/india-21-day-lockdown-what-is-exempted-what-is-not/articleshow/74798725.cms>
- Davyreid73. (2020, January 30). India confirms its first coronavirus case. Retrieved from <https://www.cnb.com/2020/01/30/india-confirms-first-case-of-the-coronavirus.html>.(n.d.). Retrieved from <https://nhmt.n.maps.arcgis.com/apps/opsdashboard/index.html#/095ad0a1c0254b058fa36b32d1ab1977>
- #India Fights Corona COVID-19. (2020, April 03). Retrieved from <https://www.mygov.in/covid-19>.

Role of Technology in Making the Society Resilient During Covid-19 Pandemic**Sowmya. S**, Associate Professor, Krupanidhi Degree College, Bengaluru, India

Abstract: The Covid 19 pandemic has transformed our professional and personal lives from the normal to a new normal. Isolate measures were taken to contain the spread of the novel corona virus. People have become dependent on technology in order to keep their lives going. Technology has become a saviour of our mutuality. The paper is an attempt to examine how technology has helped people to maintain continuous administration continuous during the lockdown. Various technological apps used in different sectors such as education, business, raising awareness about corona virus, medical consultation, online prayer services etc. are discussed in detail. These technological apps have helped the citizens to keep their lives running smoothly. Man has become techno savvy and is adjusting to the changing scenario.

Keywords: Technology, Pandemic, Social Distancing, Lockdown

INTRODUCTION

The unprecedented event that has taken over most of -the nations of the world has transformed our life from the ordinary which we took for granted to a new normal.

Covid 19, as we have seen has linked the whole masses together- the sick and the worried non-sick like partisans in a movement. The outbreak of the pandemic: Corona Virus overturned life and business in an inconceivable manner all around. This ailment, which was first distinguished in China, has contaminated in excess of 185 nations over the globe. This has unfavorably influenced organizations around the globe.

Social Distancing has been seen as the successful method to forestall the spread of Corona Virus. Individuals who are not used to staying inside may find this as an altogether different experience. However, to utilize this time gainfully, individuals started to depend on technology which has emerged as a savior of our mutuality.

CREATIVE STRATEGIES FOR SOCIAL DISTANCING**WORK FROM HOME ARRANGEMENT**

Organizations across the globe have made mandatory work from home policies to prevent the spread of COVID 19. and to keep administrations continue during the lockdown. People started working from home, minimizing travelling on public transport and group gathering at the work place. The Zoom Meeting App and many other applications have been used to conduct work place meetings so that the work is carried out in an efficient way.

During the lockdown, the IT business made representatives telecommute according to the administration order. The primary aim of the IT business is to infer same execution levels as far as quality and efficiency is concerned. They had the option to give business coherence to the customers without bringing down the quality or efficiency. Web access suppliers saw a significant spike in the interest for dongles as organizations made bulk purchases.

ONLINE MODE OF EDUCATION

The outbreak of COVID 19 has not only affected various industries, but also school and college students. Many educational institutions started online courses to ensure that education is not disrupted by isolate measures. Online classes help students to acquire knowledge while sitting at home during lockdown period. The learning process is still ongoing in this manner. Applications like Google Classroom, Zoom Meeting App, Cisco Webex, Google Meet, Microsoft Team etc, are commonly used by facilitators to make learners' teaching efficient. Face to Face instruction with online lectures makes the teaching learning process more effective. Web based education encourages the teacher to give task questions. After the student responds to all of the questions and submits the assignment, the teacher can view the same. The teacher assesses the assignment and sends them out to the student. Students from remote areas were brought into the digital system through lectures on popular online platforms and recorded classes were posted on Whatsapp groups of students.

Many online exams, quizzes etc, are successfully carried out. In many cases, the students get their online exam grades instantly. Teachers would not have ventured into online teaching, had COVID 19 not affected the people and it is a new experience for the seeker of knowledge

SHARING OF KNOWLEDGE THROUGH DIGITAL WORKSHOP

Many organisations and educational institutions hold multimedia conferences, webinars, etc. for students, faculty members and staff where prominent professors and professionals shared their views with the students.

ONLINE PRACTICAL SESSIONS

Some universities have conducted online practical sessions using online stimulated experiments. The universities have decided to conduct online examination if situation does not come to normalcy.

ONLINE ADMISSIONS AND INTERVIEWS

Schools have started conducting online interviews and admissions to senior classes. In view of COVID-19 outbreak, it has been decided by the senate that interviews for admission to PhD. MTech, programmes for academic year 2020-21 will be done online through videoconferencing.

ONLINE COUNSELLING SESSIONS

Many counsellors were engaged in counselling sessions during the lockdown period. The students were given free online psychological counselling to beat the stress. This is because in the present situation, many students are reeling under different types of stress after being confined inside their homes which can result in mood swings.

ONLINE SESSIONS TO KEEP STUDENTS FIT

With growing worries about physical inactivity due to lock down, schools are ensuring that students partake in activities such as yoga, aerobics and Zumba. Even the football, basketball and volley ball teachers along with the fitness coach, take lessons either by online platforms or send them short videos. Students practice the moves and send back their recorded practice sessions to the coach for feedback.

ONLINE MARKETING BY FARMERS TO SELL THEIR FARM PRODUCE

Farmers too relied on technological application during lockdown to reach out directly to customers. The nationwide lockdown has been a major inconvenience, particularly for those who work in areas determined by demand and supply such as agriculture. But as every other sector seems to have figured out how to handle their work online, farmers dealing with seasonal and perishable items used technology as a means of selling their agricultural produce.

They had worries about their business when the lockdown was announced. Later the idea of reaching out to the apartment complexes of the town came to their minds. The farmers who grew fruits and vegetable varieties sent messages to all their contacts who forwarded it to their apartment groups. Some of the frequent customers spread word about the varieties they have and this helped the farmers get orders and directly sell the farm products to individuals and housing societies.

ONLINE MEDICAL CONSULTATION ON DEMAND

Online medical consultation services saw a significant increase in demand during the lockdown. The demand has risen steadily from Tier 2 and Tier 3 areas as the lockdown and fear of contamination prevents frequent patients away from hospitals.

There has been some growth in the telemedicine space in India such as Docs App, mfine and practo enabling patients to communicate with the doctors and schedule consultation. A sense of close contact with the doctors comforts patients themselves.

Technology has created a new frontier for data collecting and promoting mental health. . Mobile devices such as cell phones and tablets provide the public, physicians and researchers with ways to obtain support, track improvement and improve mental well being awareness. New technology for smart phones or tablets can also be packaged into an extremely sophisticated app. Such apps may use sensor built devices to collect information

about the typical behavior patterns of a user. If the app detects a behavior change, it may provide a signal that assistance is needed before crisis happens.

ONLINE MUSICAL AND THEATRE PERFORMANCES

The overwhelming amount of live streaming in the arts sector is in parallel to face-to-face success. Artists are still able to provide their fans with high quality audio and visual experiences and viewers can still appreciate new music or favorite songs all without leaving their own home comfort.

STAYING INTERACTIVE THROUGH ONLINE GAMING

As people seek to stay interactive during the time of physical isolation, online gaming is in demand. With the number of users increasing every day, and people wanting to not only spend time but also keep social, many prefer to go for online gaming.

SPREADING AWARENESS ABOUT CORONA VIRUS THROUGH ROBOTS AND AROGYA SETU APP

Robots have been installed in various hospitals and office complexes to provide gloves, napkins and hand sanitizers. They have also provided awareness and necessary steps to be taken to prevent the spread of corona virus.

The government recently launched the Arogya Setu App to educate people about the novel Corona Virus and help them make better decisions in the midst of the crisis.

TECHNOLOGY ASSISTED MONITORING OF TEMPERATURE

Wireless thermometer guns and other related equipment have been used for checking the body temperature have been the most popular medical equipment used at checkpoints in work places, airports, hotels, clinics and other public areas. These technologies are helpful for measuring the body temperature from a distance and are effective in identifying the individuals who may need to undergo further investigation.

ONLINE PRAYER SERVICES

With temples, churches and mosques continuing to remain locked down, a new normal to connect to God is on the anvil. Religious groups have found new ways to connect on many online digital networks digitally.

Conclusion

Today the greatest danger of global catastrophe is a pandemic, an incredibly contagious virus which is more destructive and can kill many people. Technological advancements help control the epidemic and provide better equipment to tackle future public health crises in a timely, organized and calm way

References

The Times of India, Bengaluru Edition

<https://home.iitd.ac.in/pg2020.php>

National Institute of Mental Health Information Resource Centre

The Consumer Food Purchasing in the Age of Corona Virus 2020

Raghu G, Assistant Professor, Department of Management, Acharya Institute of Graduate Studies,
Bangalore, India

Abstract: The COVID-19 pandemic has really affected the way consumers buy the food products. Especially the fruits and vegetables are selected with most care including the selection of store. Many of the consumers even in safe green zone are worried about the consumption of certain type of fruits and vegetables. The time spent along with the shopping time especially the frequency of purchase has been drastically changed.

Keywords: COVID-19, Consumer Buying Behavior, Food Purchasing

Introduction

Food, health and education are the major sectors in any economy. In this lock down period the blockchain technology can empower the consumer with that lost trust and reduce the risk. Blockchain technology is entering healthcare sector and it takes time to implement in food sector but it is the need of the hour.

Among these major sectors food dominates being the basic and fundamental need of the economy and business. In this regard the application of blockchain for creating strong brands with safe produce will be the future. First mover advantage can be taken by any organization that applies this technology to build trust among buyers. The much awaited technology is now making the changes the way retailer used to manage the food produce in terms of tracking the quality at different stages of handling and traceability in all the products. Similarly the consumer can also experience the change by knowing the authentic information which will in turn builds consumer confidence. Hence the blockchain technology leads to more safe and digital data exchange help both retailer and consumer by promoting healthy fruits and vegetables which are chemical free and safe.

According to WHO recommendation an average consumption of 400 gr of fresh fruits and vegetables per day will boost the immune system. Hence develop resistance to common infections. Currently we have seen the outbreak of COVID and it is spreading globally causing major concern to regulate and restrict its exposure. Hence a solid systematic and most effective ways of consuming FFV along with most practical ways of sanitizing and quarantine of fresh produce is most important.

The application of robots in retail operations is going to be the reality but the interaction with retail employees and customers pose a challenge. Autonomous vehicle can also change the experience of retail environment as an added advantage with extended service feature of the retail outlet.

According to the Food Recovery Hierarchy developed by USEPA (2015) source reduction is the most preferred strategy to reduce and prevent food waste. As during this time the consumers or home -makers are more conscious of hygiene and cleaning the fresh fruits and vegetables after purchase and before storing and before use. This changed behavior of repeated washing is leading to many more other issues.

One of the possibilities is the problem of food loss and waste at different stages. Hence the best practices have to be developed for reducing the food loss and waste. Due to inappropriate decision at different value addition stages from production to consumption as the food loss and waste occurs during transportation, processing, marketing and cooking.

The new technologies like immersive tech are helping consumers in many ways at different stages of the consumer buying process. Few of such technologies will drive young consumers towards much more pleasant experiences. As the modern consumers are active online and social media and gaming. Now it's the right time for them to experiment during shopping too which will give the consumer the most cleanly and safe food free from infections.

3D Food Printing will change the choice of consumers as one can select any food of their choice and quickly print it in real and consume it. The food contamination issue can be addressed with this as the consumer reduces the frequency of purchase of any food product ranging from fresh apple to chocolate cake. These printers give the consumers an ultimate option of customization as per their own likes and dislikes based on their health and other parameters. This new trend may influence the retail as well as hotel and restaurant industries especially to overcome the fear of Covid-19.

Consumer behavior towards purchasing food products has been extensively studied during the last three months with special reference to Indian consumer but the reasons for not consuming have been attributed to Anti-consumption behavior exhibited in many fruits and vegetables.

Conclusion

This changed scenario has led to change in the buying pattern of consumers. It is also identified that majority of the consumers are still suspecting the contamination and hence more concerned about buying fresh produce which in turn has affected their quantity of purchase.

Confrontation with an Invisible Enemy: An Identity Crisis**Ananya Banerjee**, PGT English, Burnpur Riverside School, Chittaranjan, India

Abstract: The paper would analyse current scenario to understand the effect of corona virus, right from the infected patients and their family members to the migrant workers and top company employees. Everybody is seen going through an emotional identity crisis. Instances of domestic violence, child abuse and squeeze in income pattern of a family is proving to be additional abuse for the society. COVID 19 has triggered a reverse migration for which the migrants are facing a job crisis. Another problem that people are facing is that due to the work from home mandate, they are struggling to adopt the digitalized version of the job. My paper would try to emphasize on the psychological crisis that is been faced by almost all the sections of the society while battling with the known unknown invisible enemy. I will try to highlight how the various sections of the society are undergoing through a loss in framing their identity and hence facing an identity crisis.

Keywords: Corona virus or COVID 19, depression, loneliness, social distancing, self-identity, identity crisis, loneliness, quarantined, job crisis, joblessness, alienation, digitalization, Lockdown

Introduction

Corona virus or COVID 19 has taken its toll in almost all the sections of society. People are terrorized at the very thought of being corona infected. They are suffering from utter depression, loneliness and stigmatization. The phobic reaction of the people is driving them into nervousness. On top of that, joblessness has further aggravated the situation. While being quarantined and walking on the track of social distancing, people are getting apart from the society, from their very existence. The social distancing is paving its way to emotional distancing. People are gradually letting themselves being corner stoned yet trying hard to create a facade to hide their loneliness. As a result, it is seen that people are getting more and more alienated from their near and dear ones. They are keeping themselves confined to their own self, the self that is panic-stricken and terrorized due to loss of self-identity. They are gradually forgetting who they are and what basic role they are supposed to play in the society. Human beings are going through a phase of identity crisis.

The global community, in the current hour, is grappling with a boiling situation that is entirely controlled and dominated by a deadly invisible enemy COVID-19 or Corona Virus. Its merciless attack can be safeguarded only when the contact is cut off and hence nations are exhorting to lockdowns. The people of the nations are left being restricted and confined to the bunkers of their rooms with the infected and death count rising all over the world. This is particularly true in developing nations like India where the battle is not just with COVID-19 but also with the unsettled lives due to the unprecedented lockdown. Amidst this, somewhere, when people are home locked or quarantined, they are facing a crisis in their identity.

Identity

The ever-changing modern world has somewhat changed the meaning of identity that is being faced now. The literal meaning of identity according to the Oxford Dictionary is "The fact of being who or what a person or thing is". If dealt deeply the word 'identity' has a bigger meaning. Identity is the very basis of shaping a human personality. The inner self of a person forms his identity. According to Stuart Hall, the inner self of a person consists of many different identities. With time and society, one's identity is constantly changing, withdrawing, and developing. In his 'post-modern subject' Hall states that this inner self is often in open conflict to achieve an identification which is the root of all crises in his personality. (Hall 1999, 23.) Crisis in identity never means that a person who is suffering from this has inherited it from his parents. Identity is not achieved biologically it is something that is socially constructed. It is said that identity develops through an interaction of an individual with society. Human beings are social animals. The moment a particular human being is associated with society, the 'personal identity' turns on to be the 'social identity'. When the world is struggling to sustain itself from the onslaughts of coronavirus, parallelly, a new world is emerging with people suffering an identity crisis. The crisis is occurring due to various reasons. One of the causes may be due to an economic recession or due to the fear of suffering an epidemic, that can be seen in all nations across the world.

An unexpected bane:

With the advent of the Coronavirus in the early months of 2020, the world seemed to be flogged hard by an "unknown unknown" (George W. Bush, 2002). The world couldn't foresee the horrors of the pandemic at that time. Now when the global economy is been threatened with this potential health pandemic, it is still unknown to the world as to what measures to be taken to overcome this unforeseen crisis. Since we know much

about this demonic virus yet still there are things to be known, now there are many to call this threat as a 'known unknown'. Due to this, the world is as if stunned and disrupted. There is ruckus created not only in the lives of the patients who have surrendered stoically to the virus but also in the family and community who are in fear of capitulating to the disease. The influence of a pandemic is very well portrayed in Anne Porter's novella *Pale Horse, Pale Rider*, which showcases the 1918 Influenza in America. She has portrayed the internal conflict of a patient suffering from an epidemic through Miranda's internal struggle when she was sick. The struggle that has emerged in her mind, due to her loss of identity, was when her mind was engulfed in darkness, despair, and confusion. Her inner conflicts, her struggle, the horrors that she suffered from are well established in the line, "Her mind split in two, acknowledged and denied, what she saw in the first instance, for across an abyss of complaining darkness her reasoning coherent self-watched the strange frenzy of the other coldly, reluctant to admit the truth of its visions, its tenacious remorse and despairs." Porter had perfectly sketched the inner self of a patient suffering from an epidemic or the crisis in her identity because she underwent the same crisis when she suffered from the after-effects of an epidemic. She knew the trauma of losing a dear one when she had lost her fiancé to the disease. The same situation is as if repeated and prevailing in 2020 when the world is going through a similar traumatized version. Every moment there is a terror of succumbing to the vivacious, infective virus or of losing someone close to the hands of the epidemic.

The pandemic and its terrors:

Due to the horrors of the pandemic people are forced to live beyond the walls of the room. Every minute people are suffering under the constant threat of getting contaminated by the virus. This is making them alienated from the world. People are terror-stricken to walk freely, to talk freely, or to even socialize freely. In the words of Anne Porter in *Pale Horse, Pale Rider*, "It's as bad as anything can be... all the theatres and nearly all the shops and restaurants are closed, and the streets have been full of funerals all day and ambulances all night." This pathetic picture can still be figured out in the current scenario. The people who are succumbing to the monstrous virus - their pain, agony, and suffering is indeed heart-rending. They get surrounded by an unexplainable crisis. The loss of identity is something that is imposed forcefully on them. Every moment they are suffering, they are crying in isolation being restricted to the emergency wards particularly constructed for the epidemic.

People are failing to socialize freely, as social distancing is a must, to avoid the spread of the virus. Aristotle, the Greek philosopher, had said, "Man is by nature a social animal...society is something that precedes the individual". In this context man cannot live alone, one cannot simply shatter the shackles of mutual relationship. The fact remains undenied that for people remaining cramped within the four walls of a room - it is quite similar to being marooned on an uninhabited island for years. This restriction is initiating a sense of estrangement, detachment, desperation, and loss of identity. When a person undergoes a kind of colossal crisis in life due to an unprecedented loss of identity, there lies no joy or happiness in their life. At that moment one easily tends to magnify their problems that constantly terrorize their mind.

Suddenly life comes to a halt during the lockdown and people have to follow a tedious typical routine, they're not habituated with. They get through a sense of dearth in personality or identity. In normal times, people shape their lives according to a particular norm, or a routine is followed by the maximum number of people. When quarantined, there is a complete change in the usual routine of people and then arises a situation, when one cannot identify themselves, as they used to live before. They feel themselves to be someone they are not. One's inability to self-recognition gives rise to depression, identity crisis, and negative thinking. The whole world seems to be topsy-turvy for them. This identity crisis that has emerged during the time of the epidemic, is to continue even in the post-COVID-19 years. A new identity crisis will emerge, regarding, how to adjust with the claustrophobic new world that is waiting outside, to that of the world they would be habituated inside their home.

Due to the restrictions imposed on public gathering as well as due to the fear of contamination one is forced to avoid going to a funeral, even after the death of a loved one. People are gradually breaking down every moment but mourning in private. This has led one to question the significance of one's existence, about one's own identity as a human being. An existential crisis seems to crop up in the minds of the people who are desperately trying to shut their doors on the face of the virus but failing to avert its effect.

Identity Crisis and economic depression:

The economic recession or unemployment at the time of a pandemic is not new. The world has seen a similar impact, several times before this year. Economic recession is also leading to the emergence of many socially isolated groups who are captured in the social buffer by becoming unemployed. The involuntary loss of jobs during this period of the economic crisis has shaken the very existence or identity of the groups.

Employment has the power to change the social and economic conditions of a particular nation. In society, employment or type of job can ascertain one's "personal identity". Employment enriches one financially, socially as well as ensures one with mental stability. Loss of employment not only gives rise to financial strain but also leads one to poor mental health and ultimately loss of identity. This in turn gives rise to the feeling of isolation, helplessness, hopelessness, and negative thoughts.

According to Erikson's psychosocial tradition, identity is a feeling of continuity, identification, and acceptance that the individual experiences within a group. Mary Jahoda's (1981,1982) "functional model" proposes that work ensures us with an identity which helps in the promotion of well-being. The very statement explains the fact that good or bad mental or physical conditions can be justified with the work or job that one is doing. When one is properly educated and also have good skill for their job, losing the job leads one to feel distressed followed by poor mental health which further takes one into the state of losing one's identity. The loss of self-identity not only impacts upon the physical or mental health but also it leads one to experience the loss of self-esteem. This in turn reduces the sense of integration and presence in society.

Identity Crisis within the Proletariat (Labour Class):

The virus never distinguishes anybody based on their class or society. Generally, people are positioned as per their posts in society or by their class. The coronavirus lockdown state has led to a robust impact on a specific class of individuals - the migrant workers or the casual daily wage workers. Even during times of epidemic, they are challenged with social norms. Many independent migrants need to move across their village borders in search for work or for seeking better opportunities in the urban areas. When a nation undergoes lockdown for an uninterrupted period, due to an epidemic attack, it becomes tough for these workers to hold out their lives both physically and financially. Even domestic work ceases during this time. With a minimum amount of security and safety of health, these sections are the worst sufferers. It is seen in normal times only, that this section of the society remains detached from the ordinary mass and suffer in social isolation. It is indeed natural for them, that they would likely suffer a double more, in times of emergency. This social isolation increases and finally these jobless bands of workers flee from their worksite, back to their home with the expectation of restoring their identity.

Shambled power and Social Identity:

From corporate to education, employees are forced to work from home. This sudden shift of the workplace is giving rise to a crisis in identity particularly when there is a deficiency of infrastructure and knowledge to handle the same. Employees have to struggle hard with their outdated laptops or mobile phones, poor connectivity due to substandard network, minimal knowledge to handle groups, meetings, and take classes in digital platforms like Zoom, Google Meet, etc or to prepare online questions paper. Failure to prove oneself efficiently in these platforms are leading people to suffer from a crisis in identity. They are struggling hard to prove themselves efficient enough to hold their place. This struggle is ultimately hampering their productivity.

Disarrayed Personal Identity in the Employees and the Students:

It is not just the teachers but also the students who are the worst sufferers. Due to the persistent lockdown, there is a switch to online classes by the schools. This is creating a catastrophe for the students. Students who are usually habituated of having a face-to-face learning environment, are now seen to be glued to mobile screens or laptops. The fact cannot be denied the teachers are struggling a lot to provide the optimum for the students but some undenied problems still lie on the way. Usually, in a typical classroom, teachers get motivation through interaction with and participation of the students. There is a kind of liveliness, energy, emotional attachment when there is a face-to-face connection between the teachers and the students. Now, in the online platforms or the classes, the students almost look like icons on the screen. That feeling of closeness is almost missing in these digital classes. There is yet another problem that is arising among the students. In digital classrooms, the students are divided into two parts - in the first part lies those students who have access to all the facilities required for attending an online class. Whereas the other part is lacking the infrastructure to go through an online class.

The online classes are creating a kind of 'digital divide' among the students. Here the students who have the opportunity to prevail through the uninterrupted online classes are the benefitted ones and those who cannot have proper access are the losers. This group is gradually being secluded, where students feel that they are the losers and execrate themselves for not getting the proper facility of teaching-learning. Ultimately this is giving rise to inequality in the education system. In a regular classroom, all students are equal but due to this digital divide, few students can't avail of the digitalized education at par with other students. Other problems are also

paving their way for the students - like mental fatigue, lack of infrastructure, lack of connectivity, etc, which are ultimately giving rise to a crisis in identity particularly for the secondary and senior secondary students. The teacher-dependent students are failing in recognizing the fact that they can also prove themselves in the academic challenge. Likewise, it is observed in the weak students that they suffer from an identity crisis in a conventional classroom itself. In a digital classroom where the personal touch of the teachers is almost missing, these academically back students shifts more and more into darkness. They feel embarrassed to open up in front of the teacher on the online platform and hence face implied isolation at a corner.

Diminishing power and Identity Crisis:

The virus is moving freely along the parts of trade and capital too. With the sudden shift in the balance of political and economic power, even the powerful or the richer section of the society are going through a period of an identity crisis. In the global market, the shift in the ranking index of richest people world-wise or continent-wide clearly shows the down list or fall in the wealth of a few big industrialists. This is like a bolt out of the blue for the rich men who can perceive the downfall of their position in this period of crisis.

Conclusion:

In this unpredictable world, when every moment is awash with risk, it is indubitable that several *unknown unknowns* are yet to happen. These *unknown unknowns* create a crisis in life. It is said that a crisis can only lead to development. Problems and solutions are two sides of the same coin. The moment there is a problem, the solution is to follow accordingly. Problems and solutions to the problems can lead to the development and progress of a society. A human mind has the power to continuously adjust to the constant changes happening around them. Whenever there is a change, an identity crisis is likely to happen. This is so because human beings adjust themselves to a particular environment- that becomes their basis of identity. When there is a shift on that very basis, they suffer from a crisis in identity. The same thing has happened during the COVID-19 lockdown situation. When a person's entire existence is been ripped off, when a person repents of having no income inability or failure to showcase their talent, they are certainly going through a crisis in identity. They tend to forget who they are and what their life had been before. Then the world can only be left with few consolations that maybe a day will come when the world will be a different place to live in, maybe people would come up from the sense of isolation at the end of the crisis or maybe the world will understand that they have to come out of their selfishness. It is the self-centeredness of human beings that is leading them to this identity crisis. The moment they come out from this isolation they will get the power to think bigger and can break the shell of self-centeredness to think for everybody. Then only we can achieve "Vasudhaiva Kutumbakam" or the world is one family.

The fact is undeniable that the present world is scurrying to fight with an invisible enemy, with Corona infectious rate increasing daily and death rates rising, yet along with the COVID warriors, the entire world is battling against it. If one seeks an answer to the underlined question of whether the corona warriors too are suffering from an identity crisis, it is in affirmative. On the one hand, we are enhancing their identity with our appreciation while on the other hand, this appreciation is ultimately the reason for their identity crisis. They too are struggling hard in their dilemma of choice between their family and duty. A crisis has the power to ultimately uplift one's personality. If the battle is taken positively this identity crisis has the potentiality to reinvigorate and transform the country's future with newer inventions. This crisis can force one to think strategically to overcome the crisis and implant a collaborative culture in the world.

References

Hall, S., D.Held., & A McGrew. (ed) 1992. *Modernity and its Futures*. London: Polity Press.

Hall, S. *Identiteetti*. 1999. Tampere: Vastapaino.

Porter, K.A. *Pale Horse, Pale Rider: three short novels*. New York: Harcourt, Brace, Jovanovich; 1939, p. 177-264.

Bristow, Nancy K. "It's as Bad as Anything Can Be": Patients, Identity, and the Influenza Pandemic.

Norris, Dawn R. *Job Loss, Identity, and Mental Health*

Engaging Students Online – Involving & Evolving Strategies to Ensure Effective Learning

Dr. Anandhi. M., Associate Prof & Head, Department of English, Sri Ramakrishna College of Arts & Science for Women, Coimbatore, Tamil Nadu, India

Abstract: The Covid-19 epidemic has triggered new changes in the educational system throughout the world. All over the world the digital world is gaining momentum, as we are marching towards an automated world, E-learning has attained a major place in educational Curricula of schools & Universities all around the world. This situation is enhanced or made as the focal point during the lock down period, to ensure academic continuity. Learning online has become all of a sudden a global practice. The entire cause of online classes will not be realised until and unless the learner realises the true aspects of learning. This may sound as simple as it is but it is of prime importance on an online learning platform.

Keywords: Online, Effective Learning, E-learning, Covid-19 epidemic

In online education, the knowledge sharing is the same all over the world. It treats everyone alike. But it is in the hands of the educator to use these platforms effectively. Web innovations have changed the way we study; it stands in relation to one another. It has grown in leaps and bounds from its beginner's state and as of now online education caters to the needs of every learner, providing all possible information. With all these merits about it, and during this lock down we have kept our academic vistas open, yet it is a challenge to engage students through technology alone. An ordinary class room has the benefits of Teacher-Student engagement, whereas an online platform lacks it.

I would like to quote Bill gates,

“Technology is just a tool, in terms of getting kids working together and motivating them, the teacher is the most important”

This article captures the perceptions of the virtual classroom and analyses the strategies on engaging students online, thereby making it productive and an enjoyable experience

Online Teaching-Learning Trends

Every year as technology discovers or gives birth to various new forms of learning and teaching tools, the Covid'19 has proved to be a platform wherein the whole world has come to rely on technology for teaching and learning. As we see the growth happening in leaps and bounds, the past few months have seen a new virtual world in education.

The importance of online education began much earlier with all its implications towards self-learning, but gained impetus in 2020 thanks to quarantine. Means and ways of Education have transformed itself into a personalized experience for students. Academicians and educators should understand that this requires an individualized teaching approach that is adjusted to the needs of every student, though this is important for regular teaching too, but online teaching calls for a more personalized experience. This parallel or rather joins hand with student's interests, strengths, needs, and struggles. Implementation of various tools by teachers helps to discriminate their training methods, including video lessons, augmented reality, virtual reality, interactive games, etc. in the virtual classroom. Thus personalized learning is an extremely operative approach when it comes to modern education.

To Quote Daphne Koller,

“Online education, then, can serve two goals. For students lucky enough to have access to great teachers, blended learning can mean even better outcomes at the same or lower cost. And for the millions here and abroad who lack access to good, in-person education, online learning can open doors that would otherwise remain closed”.

The only question is how effective are these tools in engaging the students of today. If only that complete engagement is possible then the whole purpose of online education would be fulfilled.

The proposed outcomes of good learner engagement

Any online class or session can be proved to be fruitful by ways of measuring the outcomes. Here is the question of the ways to measure the same which also becomes important. A good learning is said to have been achieved if the following outcomes are reached.

1. Students can learn at their own pace.
2. A complete humanized experience is brought about
3. Effectiveness of the content delivered can be measured via student performance

4. Measuring the effectiveness of the content delivered is possible through tasks
5. Content could be effectively reused
6. Learning was an enjoyable experience
7. A certain connectivity could be felt between the teacher & student
8. An active & inclusive online learning community is built
9. The course was enjoyable & comprehensive at the same time
10. The feedback on the training ensures satisfaction on the side of the learner
- 11.

Renewed role of teaching & the Internet of Things

Teachers have their roles renewed and reversed with online teaching, these modern classes does not only expect the teachers to simply supply data and information as the content is already available as web content and it can be accessed by the student anytime. So the most important trait that which is necessary is to engage effectively, and to facilitate the learning process rather interestingly.

The Internet of things (IOT) meaning the linking of various devices is playing a major role on people's lives. It has also had its own effect on the field of education too. The Presence of Mobile phones in every hand makes content readily available to every student and also facilitates the teacher to create effective lessons to engage learners. IOT makes teaching and learning effective by interacting with parents, students providing content, testing through assessments, producing reports and this makes learning traceable more than ever, identifying the strength and weakness of the student. The lessons offered are more operational, stimulating, alluring, and inspiring. The straitened union between technology and modern online learning is altering the world of education and making it more dynamic and likeable for students in schools, universities, and corporate trainings. Furthermore, the development in the field of Artificial Intelligence is creating a renewed atmosphere for new and extraordinary approaches in the case of online learning that was not earlier possible.

Online Learning as an effective exercise

Online teaching should be viewed only from the perspective of the student and the Preparations for the same should be made considering this as the focal point. Students come across a variety of online content in the form of text material, videos, applications, audio etc., Are all of these prepared having the student as a centre point? The question remains unresolved. In my opinion the online content developers should actually envisage the learning experience as a whole. It totally involves creativity to use these tools imaginatively.

By taking all this into consideration one should not forget the role of the teacher. His or her role comprises of actively engaging the students and making learning effective. As we tend to imagine the role of learners, equal vigour must be put to increase the affectivity of teaching as well. In this way a complete realised learning platform will be formed. Every teacher must be adept in using basic technological gadgets, platforms and apps that they can use it meritoriously for their students. A teacher should continuously update their knowledge about these online devices and tools that they may be on par with their students. Moreover present day students like their teachers to be technically sound and they tend to look upon a teacher with clear technical skills, and to look down on someone who is not skilled technically too.

The real Challenge

In the words of Seymour Papert,

"You can't teach people everything they need to know. The best you can do is position them where they can find what they need to know when they need to know it".

But it is easier said than done, as the challenges of online teaching are many as it requires the dismissal of the physical space and replacing it by the virtual one. But this should not be an excuse for the determinant of Academic quality. A virtual classroom should not lack any of the quality of the physical class. For this the instructor should use as many interesting online tools available to involve learner engagement. This will attract the learners and will make the total experience a momentous one

Online teaching can be made effective, likeable and a completely involved exercise if the teacher can take full advantage over the available technology. In any case technology cannot replace or imitate the in-person back-and-forth of a classroom, but motivating students to make the fullest use of social media platforms and to set up virtual discussion groups that can help simulate that co-operative environment. These activities will motivate the students to turn to each other and learn together in a group as they proceed with their lessons. The best way is to incorporate direct interaction as often as possible. We also see that students interact more freely in a virtual environment. This may be due to the fact that they find themselves as active participants of a group, and are motivated to ask questions and clear doubts rather naturally, which may not often happen in a physical

classroom. The students may also become interested in handling parts from lessons as they might not be apprehensive about facing the whole class physically but only through the screen! Live sessions may also create a lot of interest and the learners may become more productive and enthusiastic.

Evolving as a compatible online teacher

One of the very best way to evolve as a compatible online teacher is to provide feedback on the students' performance and offer suggestions for improvement. Platforms like Google meet, Zoom, Teamlink, Skype, Cisco Webex etc creates a face to face engagement, thus paves way for a realistic experience for the student. Each individual student gets the attention and leads to an open learning environment to discuss their concerns and queries. Assignments, reminders, discussions etc., help the learner to progress in their course more effectively. A session difficult to understand can be replayed by the student at their own pace for their better understanding. This makes the learner confident in their own self. Additional resources provided will serve as reference material, wherein if the student feels like elaborating on their knowledge levels, it might be helpful. Also visual presentation of facts helps students to get an insight into the text there by leading to better comprehension. This is drawn out of a recent study based on students' learning pattern that ,these additional materials kindle the interests of the students, and these external resources are read by maximum students in a class, just out of curiosity at least.

Conclusion

Though it might be a hard cry to achieve fullest learner engagement and to be a skilled online teacher, but still it is not far from achievement. It can be realised by a mutual co-operation and understanding on both the sides of the learner and instructor

In the words of Chris Parnell,

"You never won't know what you can't achieve until you don't achieve it".

It is better to strike the iron when it is hot, at the right time teachers/facilitators should draw out the expectations and necessary characteristics of a successful online class, so that students can understand that the online environment is actually a prolific platform for learning. The teacher may also improve/improvise through questionnaires receiving feedbacks anonymously also will help the facilitators to work on the areas which needs improvement. This will also provide a clear insight for the teacher into the student mentality, thus knowing that He/She is not talking to a screen but to active minds ready to acquire knowledge.

The role of students in a virtual environment like this is not subservient, but requires a lot of commitment on the side of the student too. Staying up with the class in completing assignments on time, never to miss a class, in case then to watch the recorded video before the next class are all essential factors that a student must understand and follow. If there is a lag in the student the facilitator may have multiple ways to analyse the cause, and help the student to rectify it that they may catch up with the rest. The term hands-on teacher becomes very much applicable to an online teacher, who by employing all these multiple ways can make learning a very effective exercise to the learners of today.

References

- Briggs, A. "Ten Ways to Overcome Barriers to Student Engagement Online. " Academic Technology. February 11, 2015. https://onlinelearningconsortium.org/news_item/ten-ways-overcome-barriers-student-engagement-online/
- McInnis Brown, M., & Starrett, T. "Fostering Student Connectedness: Building Relationships in the Classroom." Faculty Focus Higher Ed Teaching Strategies. April 7, 2017. <http://www.facultyfocus.com/articles/teaching-and-learning/fostering-student-connectedness-building-relationships-classroom/>

COVID-19 and its Socio-Economic Challenges on Bangladesh

Dr. Hoimonti Barua, Research Associate, Nepal Institute of International Cooperation and Engagement, NIICE, Kathmandu, Nepal

Abstract: Pandemics are by and large outbreaks of diseases that become widespread due to human-to-human transmission of the contagion. Currently, human race is experiencing a global health emergency that is mercilessly eliminating lives and spreading agony. Existence of billions of people is upended by the corona virus pandemic across the globe. It is a human, social and economic crisis; an onslaught on the fundamental essence of societies. The corona virus related crisis pummeled on health, society, economy, and security of Bangladesh. The purpose of this paper is to highlight its far-reaching impacts on Bangladesh which is more than a health crisis. The paper discusses the pandemic's effect on the economy of Bangladesh which has had collateral consequences on the social aspects and community living in this developing country. Bangladesh with a steady economic growth was predicted to become a middle-income nation. This paper explores the limitations and challenges in the context of the current scenario. At a moment when there is no cure at hand, the crisis is most likely to continue for longer; hence it is essential to probe Bangladesh's status from every aspect.

Keywords: Covid-19; South Asia; Bangladesh; Socio-economic

Background

Pandemics are by and large outbreaks of diseases that become widespread due to human-to-human transmission of the contagion. Co-evolution of humans and pathogens, within the same organic eco-system is like a corresponding evolutionary relation. Biological invasions have been an invariable aspect all through the history of humans and are associated firmly to human actions (Santini et al. 2017:647). Pandemics have been a part of the civilisation for time immemorial. Whether it was the Antoine Plague in the Italian peninsula (165-180 A.D), the Black Death (1331-1353) in the Western Europe and the Mediterranean or the Spanish Flu pandemic (1918-1920) decimating 50-100 million people and affecting 500 million population worldwide, pandemics have had a long history (Huremović, 2019), killing thousands of lives every time. The more recent ones of the centuries, the Hong Kong Flu, SARS, H7N9, Ebola, etc. and the covid-19 being the most recent one and of utmost significance. Currently, human race is experiencing a global health emergency that is mercilessly eliminating lives and spreading agony. Existence of billions of people are upended by the corona virus pandemic across the globe not only by the direct pain from lives lost but also by the ripple effect caused by its detrimental results which is more than barely a health crisis. It is a human, social and economic crisis; an onslaught on the fundamental essence of societies.

In South Asia, infectious diseases (ID) have invariably been a common reason of deaths. Epidemics consistently returned in regular intervals of decades to cause mass destruction. Bangash (2020) argues the Indian-origin cholera epidemic in 1817-21 took 18 million lives in (undivided) India, followed by the Bubonic plague of 1896-1901 with more than 10 million population perished. Still the corona virus pandemic has engendered manifold reactions from around the world. It is of importance especially in this era because it is the first global epidemic of such a magnitude in the last hundred years since the influenza of 1918-19 that has decimated and still decimating thousands of people every day in most countries, with no cure yet. Needless to say, after a century, an insufficient 'historical or institutional memory' is left to grapple with a global medical-emergency of such enormity.

The Covid-19 or the Novel Corona Virus, a fatal infectious disease originated from Wuhan, in Hubei province of China came to light in November 2019. The trepidations increased due to the rapid shift of the outbreak epicenter from China to Europe followed by the United States with maximal numbers of mortality. South Asia is home to one-fourth of the total population of the world with 1.9 billion people (Worldometer, 2020). Here the pandemics worst blow is injuring the region grimly. It has been more than three months since the outbreak in early March 2020 in South Asia with more than 5, 29,743 infected and 12, 362 cases of death and the situation is nowhere near control in some of the countries like Bangladesh, India and Pakistan. Specific numbers of cases at an ongoing phase is unattainable; however, at the time of writing the paper Bangladesh had 94,481 cases, with 1,262 deaths (Ibid.). History has proven repeatedly that pandemics unquestionably have had long term impacts in people's lives and the novel corona virus will not be an exception. The corona virus related crisis pummeled on health, society, economy, and security of communities both regionally and globally (Qiu et al., 2017:3). This essay highlights the far-reaching impacts of the deadly disease on Bangladesh.

Social and Economic Effects of Covid-19 on Bangladesh

At this juncture, the Covid-19 unsympathetically reminds us that pandemics are biological, political and global in nature and have reverberations on all. Massive detrimental effects, followed by the string of morbidity cases on the society, economy, well-being and productivity of the people of Bangladesh have been felt like any other countries in the world.

In the first place, the pandemic demands limitations on movements as a prerequisite to minimise the chain of contamination. Living or residing in close proximity of an affected individual pose maximum life threat. In the earlier times, plagued villages were sealed off to curtail proliferation to the rest of the societies. But, the spread of recent infectious disease is more global, and, it reached rather swiftly in cities and other countries, economically debilitated even outlying regions that rely on urban markets. Qiu et al. (2017) refers that these are threatening infectious diseases, capable of cross-border movements as has been evinced by HIV, H1N1, H5N1, and SARS epidemics and now the Covid-19 which took the shape of a pandemic. Therefore to control the ongoing health quandary, World Health Organisation (WHO) firmly advocated ban on travel and strictly practice social distancing.

At the outset of a new type of ID epidemic, when the agencies of transmission are still unestablished, the safest measure adopted is isolation or quarantine (Malhotra, 2020; Rakesh, 2016). These are medical measures widely practiced for infectious diseases. Interestingly, the age-old measures like 'isolation' and 'quarantine' gained a new momentum and have become the new buzzword along with two other terms 'lockdown' and 'social distancing'. With an aim to control the spread of the disease among communities, most nations, beginning with China, followed by the United States, United Kingdom, Europe and then the rest of the world, began to observe extensive lockdowns at international, regional and community levels.

An uncontrolled epidemic destroys the moral health of a nation and severely compromises national security. While it is pivotal to respond swiftly to a spreading pandemic, pushing people with unprepared, unplanned rules have unintentional yet ruinous consequences. Yet, to control its spread the government of Bangladesh declared a nationwide lockdown for two months from March 24 till May 30, 2020. So, what started as a health emergency became a matter of grave socio-economic concern. The effects of pandemics on a society and its economies are complex and interrelated in nature. *Social impacts* are manifold which may be determined by various factors like income, hierarchies of life-style, employment or earning securities, mental health etc. All these factors are so innate to each other that disturbance on one automatically pulls in the other aspects.

For the under-privileged category, maintaining socio-economic security is a life's challenge. Observing a concept of lockdown or social distancing, especially by the poor community becomes an additional challenge.

Bangladesh is a small and extremely densely populated country of 169 million people with a population density of 1,179 people per square kilometers as of June 2020 (World Population Review, 2020). The infrastructure and healthcare facilities are poor and unreliable which make the life in the region vulnerable, exposed and impuissant to this invisible enemy. According to the UNDP, number of urban poor in all urban centres is 9 million, of which 5 million are alone in Dhaka (Mamun, 2020). A perturbing headcount of 6, 50,000 people residing in 3,394 slums in the capital suggest they live in overcrowded slums with large families cramped in very tiny rooms (Dhaka Tribune, 2020). It is self-explanatory that concepts like social-distancing or isolation comes across as ornamental popular jargons, infeasible to the settings of their residence or lifestyle.

Most of these people living in urban-slums are low-income professionals like day laborers, rickshaw pullers, construction and factory workers, house-helps, restaurant workers and shop assistants, transport workers, bhangari [plastic] workers, petty business owners etc. Kamruzzaman opines a joint study was conducted by Power and Participation Research Center (PPRC) and BRAC Institute of Governance and Development (BIGD) on 5,471 slum households that suggested that since the outbreak of the novel corona virus and imposition of lockdown the average income of these people reduced by 80 percent (Andalou Agency, 2020). The poorer constituents of the populace have taken a substantial impetus of the economic down-fall with comparatively larger income shocks. Especially for the most necessitous and penurious ones, source of income has been destroyed entirely. For instance, the report generated by the PPRC and BIGD suggested a drop of 82% in per capita income that is BDT 27 (\$0.32) which was BDT 108 (\$1.30) before the pandemic hit the country (Ibid.). Inadequate income forced the vulnerable reduce food consumption to subsist through the crisis triggered by the pandemic.

Negative impact on one's source of earnings varies with the nature of occupation. The South Asian Network on Economic Modeling (SANEM) model points out that a large division, i.e. 43 percent of the population is engaged in agriculture and food-related professions. Rural livelihood remains strongly dependent on agriculture, live-stock-rearing, and fish-cultivation. Food security of the country parallelly depends on the rural livelihood. Urban food markets depend on farmers and farmers depend on the transfer of goods through transport system. Decreased movement of goods increases asymmetrical distribution of cost between the farmer and the vendor leaving the farmers more vulnerable in terms of financial gain. Restrictions on movements and

'basic aversion behaviour' by workers have high chances of impeding farming. Quarantine measures limits access to market, and supply chain disruptions in food availability.

On the demand side, loss of purchasing power change people's eating patterns, reduced capacity to purchase or panic purchases of food that can break the supply chain. Trepidations related food security gave rise to inflation, limited access to items and food-riot; although no such food riot was noticed in Bangladesh. As a result, countries with high levels of food insecurity are generally more susceptible to greater disparities.

According to Dr. Arif Hussain, Chief Economist and Director of Food Security Analysis and Trends Service at United Nations World Food Programme (WFP) in Rome, in some contexts, the economic consequences of this disease could end up hurting more people than the disease itself, and this applies to Bangladesh to a great extent (Beltrami, 2020). Aforesaid, the country was brought under a lockdown for two months. Nevertheless, a shutdown in Bangladesh is very different from the shutdown of global north or the western nations. The disease led panic caused large-scale economic cost, disproportionate to the number of cases. Urban livelihood on the contrary is based on industrial sources. So, the other notable sections such as the garment factories (16 percent), retail business (11 percent), transportation (10 percent) and construction sector (7 percent) (Financial Express, 2020) were hit in various proportions. The ramifications of this setback have dreadfully affected Bangladesh in multiple ways.

The economy of Bangladesh is based fundamentally on the 2R's – remittance and ready-made garments (RMG). However, private sectors, micro, small and medium enterprises (MSMEs), and leather and shrimp export dependent on the European Union (EU) are major contributors to the economy. The emergence and rapid proliferation of novel corona virus has affected the transmission channels of a progressive economy of Bangladesh. Brian Wong opines, "a global recession has hit which is likely to be worse than 2008 and it will bring about political uncertainties along with critical non-traditional security threats. The pandemic is going to end at its own course...far reaching for a country like Bangladesh" (Barua, 2020)

Bangladesh, at present, a lower middle-income country had a steady economic growth rate until the end of 2019 (World Bank, 2020). Giménez et al. (2014) argued the Vision 2021 and the associated Perspective Plan 2010-2021 adopted by Bangladeshi government outlined a series of developmental goal for 2021. The economy was expected to grow at 8 per cent forecasted by to the Asian Development Bank; now the predictions by International Monetary Fund and World Bank are at a pessimistic 2 percent (Global Times, 2020; International Monetary Fund, 2020). The country's recent economic growth trajectory exhibited every potential to rise as a Middle-Income country by 2024, until the whole world was brought to a standstill by the deadly Covid-19 crisis.

The major economic players have been hit abominably, and Bangladesh began to experience the shockwaves since early March. The export outflow has stopped with the mammoth withdrawal of investment flows from the developing nations. Massive financial deprivation is experienced due to shutting factories. Many RMG factory owners lost several global orders, many forced to shut down. According to the report by the Centre for Global Workers' Right of Penn State University and the Worker Rights Consortium around 58% of clothing suppliers of Bangladesh have terminated operations. International buyers cancelled 72% orders, declined to pay the production cost of about 91% and repudiated to compensate the cost of raw material purchased by the suppliers. The Bangladesh Garment Manufacturers and Exporters Association (BGMEA) divulged about the product cancellation from Bangladeshi garment factories worth \$3 billion by the partner fashion companies. The BGMEA believe the actual figure would be higher than the current figure. Import inflow particularly of raw materials is facing hold-ups; principally because they are reliant on imported raw materials the supply of which has been acutely affected after non-functional ports. Closed borders, shipments and ports have created surfeit and financial losses for many businesses. Bangladesh earns a substantial amount from remittances sent by their diaspora. Earnings from remittance stood at \$18.32 billion at the end of 2019 (New Age Business, 2020). Remittances earnings are weighed down as the remittance senders are being sent back home. The aviation sector suffered a job loss by 9 per cent, salary and benefit cuts affecting more than five thousand employees. The International Air Transport Association foresees a net loss of \$39 billion in June 2020 (Bangladesh Monitor, 2020). The closedown of tourism and travel is likely to wipe out billions from the aviation operators; out-migration, tourist arrivals and departures are ceased; circulation of investments are facing growing precariousness and these are disintegrating the various other interconnected sectors.

The damage has been felt especially in terms of poverty. In 2019, poverty rate of Bangladesh was at 20.5 percent. According to SANEM's predictions now it is believed to increase to be 41 percent, what it was a decade back. This suggests Bangladesh's achievements of poverty reduction over the last decade will be completely lost (The Business Standards, 2020). To add to the woes, a percentage of salaried populations are among the sufferers. Many have encountered massive salary cuts, job loss, and termination of contracts, unpaid leaves, and job uncertainties and also halt in recruitments. So there are an increasing income insecurity Bangladeshi people encountering.

Health-care Interventions in the Covid-19 Management

A timely health-care intervention is pre-requisite during health related emergencies. Bangladeshi healthcare infrastructure is poor and its response to address the situation was exceedingly sluggish. It clearly shows their incapacities of tackling this gigantic disaster. Although the number of testing has increased than before, it is still relatively low. There is a huge gap in terms of testing, contact tracing and treating along with resource constraints. It has become an impossible mission for the government of Bangladesh to implement a lockdown or encourage its citizens a 'social distancing'. In an over populated country with an outburst of urban slums, not only social distancing is a luxurious concept, so is washing hands and clothes continuously as a safety measure. Insufficient financial resources coupled with poor healthcare facilities and unhurried preparedness to fight against Covid-19 has brought unfathomable challenges in front of the country. At the community level, a psycho-social crisis is building up like hopelessness, anxiety, fear, depression etc.

The pandemic has started to spread in Bangladesh and its end is uncertain. The ramifications of the corona virus have affected the poor, lower middle-class, middle-class and the rich simultaneously although in varying proportions. For the destitute the struggle is more as they struggle between 'hunger vs. health'. The government will encounter continuous dilemma to choose between 'saving lives or saving livelihoods' because both are inseparable and the biggest challenge lies in balancing all these factors perfectly.

Conclusion

Pandemics take human lives, affect societies deeply and have profound consequences due to its large-scale outbreak. At various levels, a laidback approach of the government of Bangladesh has raised critical questions about the methodology of their preparedness. A nonchalant approach of the lawmakers and confused attitude of healthcare experts to enforce early disaster management mechanisms puts the country at the brink of risk which is exploding everyday with growing numbers of death and infected. Their miscalculation and error are further lacerating Bangladeshi lives. Although enough time was in hand, to learn from the successful nations, prepare healthcare facilities with proper equipments, train the medical operatives, unfortunately may have been under-utilised. Corona virus has proved that outbreak of a pandemic do not essentially occur where health system are the weakest, e.g. the case if USA.

Despite a hyper-activity among the academics, there are uncertainties because epidemiologists and scientist have not been able to find a way out to cure the disease. Not only is the South Asian region vulnerable, infact high levels of poverty, illiteracy, lack of seriousness of the citizens, dense population and gaps in healthcare facilities have made Bangladesh and South Asian countries like India, Pakistan susceptible to outbreaks. Since the end of lockdown and re-opening of the businesses Rising numbers of affected and death tolls are already indicating that we are moving towards catastrophic outbreak.

References

- Beltrami, S. (2020, March 16). How to minimize the impact of Corona virus on food security. *World Food Programme Insight*, World Food Program.
- Global Times. (2020, May 11). Economic ramifications of Covid-19 in Bangladesh, <https://www.globaltimes.cn/content/1187977.shtml>
- Giménez, L., Jolliffe, D., & Sharif, I. (2014). Bangladesh, a middle-income country by 2021: what will it take in terms of poverty reduction? *The Bangladesh Development Studies*, 37(1-2), 1-19
- Hye, H.A. (2019, January 02). *The state of Bangladesh economy-2019*. *The Financial Express*.
- Huremović, D. (2019). Brief history of pandemics-pandemics through history": *Psychiatry of Pandemics*; 7-35.
- International Monetary Fund. (2020). *Helping Bangladesh recover from COVID-19*, <https://www.imf.org/en/News/Articles/2020/06/11/na-06122020-helping-bangladesh-recover-from-covid-19>
- Kamruzzaman, (2020). Coronavirus: poor income drops 80% in Bangladesh, *Andalou Agency* <https://www.aa.com.tr/en/asia-pacific/coronavirus-poor-income-drops-80-in-bangladesh/1808837#>
- Malhotra, A. (2020, April 26). When the 1897 Bubonic Plague ravaged India. *Live Mint*.

- New Age Business. (2020, January 02). Remittance hits record \$18.32b in 2019. <https://www.newagebd.net/article/95292/remittance-hits-record-1832b-in-2019#:~:text=Remittance%20inflow%20hit%20a%20record,against%20%2415.54%20billion%20in%202018.>
- Nicola et al. (2020), The socio-economic implications of the corona virus pandemic (COVID-19): A review, 78:185-193
- Qiu, W., Rutherford, S., Mao, A., & Chu, C. (2017). The pandemics and its impact. *Health, Culture and Society*. 9-10
- Rakesh, PS. (2016). The Epidemic Diseases Act of 1897: Public health relevance in the current scenario, *Indian Journal of Medical Ethics*, 1(3):156-160.
- Santini, et al. (2018). Tracing the Role of Human Civilization in the globalization of plant pathogens. *International Society for Microbial Ecology Journal*, 12:647-652
- The Bangladesh Monitor. (2020, April 07). Airlines of Bangladesh in turmoil due to covid-19. https://bangladeshmonitor.com.bd/news_update/2223/Airlines-of-Bangladesh-in-turmoil-due-to-COVID-19
- The Business Standards. (2020, May 01). Covid-19 impacts may double poverty in Bangladesh, says think tank, <https://tbsnews.net/economy/covid-19-impacts-may-double-poverty-bangladesh-says-think-tank-76027>

Empirical Study of Covid-19 with Reference to India**Ankita**, Assistant Professor, CGC Landran, Mohali, India

Abstract: The whole world economy has been suffering from a pandemic known as COVID-19 where almost every country has gone under lockdown and complete shutdown of all the economic activities. It's not the first time when the world is suffering from such a virus but this widespread virus is more deadly and fatal. This research will mainly focus upon the impact of coronavirus on the Indian economy which has automatically created a hurdle for India in becoming the world's third largest economy by 2025. There are numerous diseases like SARS, HIV, and AIDS for which there is no vaccine, but the universe has never foreseen such a virus whose widespread is beyond a limit and has turned pandemic within very short duration. It is the first time in history when all the economies were closed. This research will highlight how a virus can be so disastrous to the economy and how the Indian government is taking measures in order to tackle the various problems faced by the common man due to lockdown. From the undertaken research it was found that with the announcement of the lockdown the level of unemployment has increased and also many sectors like manufacturing, trading, aviation, education and tourism are adversely affected in India.

Keywords: Coronavirus; Covid-19; economy; lockdown; pandemic; Government; habitat

Introduction

The world has consistently witnessed several disastrous incidence where the loss of human life and property has occurred. But the world has never witnessed pandemic like Covid 19. The scenario of COVID-19 can be more lethal and disastrous in relevance to the great depression 1929 as there will be more unemployment, factory closure and, trade restrictions. COVID-19 was declared as public health emergency by WHO on 30 January 2019. As per The Guardian newspaper, the noble coronavirus has zoonotically originated from the Wet market in Wuhan, China.

But according to Harvard Medical School, the virus might have originated in August 2019 as they have believed the hypothesis that the virus might be in the community prior to identification, for this research they have taken the satellite pictures of 6 specialised hospitals in Wuhan. The research of the Harvard medical school shows sudden hick in the cases of cough and Diarrhoea during August 2019. However such claims has been totally denied by the China. The first positive case of Covid 19 in India was registered in the state of Kerala and the impacted person was an Indian student who was studying in Wuhan University. In 2019 the world has witnessed several disastrous incidents like IDAI cyclone in South Africa, global wildfires and deadly Coronavirus which led to huge losses worldwide. India is the second most highly populated country so it's very challenging to cope up with this drastic impacts of coronavirus. The research will be highlighting the various precautionary steps taken by the Indian government to tackle this deadly situation.

Objectives

1. To know what is coronavirus (Covid - 19).
2. To understand the various reasons for widespread of coronavirus covid-19 even after lock down in India.
3. To analyse the impact of coronavirus Covid-19 on India.

Research Methodology

Descriptive research is being carried out to know what is coronavirus how it is prayed when it has been traced for the first time and how it is impacting the Indian economy on a larger scale. For this research secondary data has been used in order to conclude the impact of COVID-19 on India's economy. Secondary data is used when the population is large and the collection of first hand data is difficult. Secondary data provides a reliable source of information as the data has been collected by the government departments and other agencies.

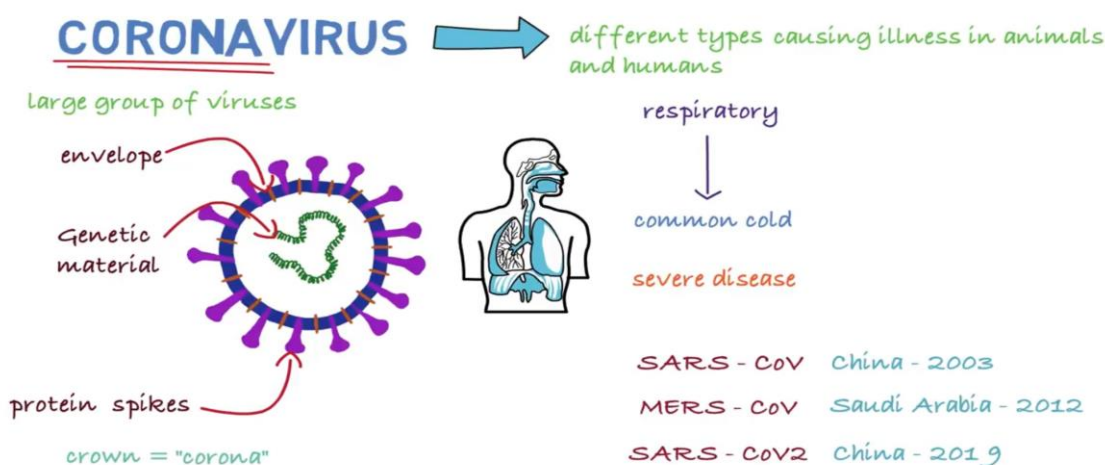
Literature Review

1.Zhonghua Liu Xing Bing, Epidemiology Working Group for NCIP Epidemic Response, China -as per the research the researcher has stated what is coronavirus and he has also founded that the fatality rate was 2.3% in February, 2019 China and total infected cases were 16186. As per the research the wide spread of this Coronavirus was at peak in January but still no adequate measures were taken worldwide

2. Dr JT Pratheesh, Ponjesly College of Engineering, Nagercoil-The researcher has made an effort to study the impact of this deadly virus on the Indian economy, he had evaluated that shipping industry ,chemical industry, pharmaceutical industry, solar power sector, tourism and banking sector will be adversely affected. Moreover, he has highlighted the usage of virtual mode for carrying out the transactions of money.

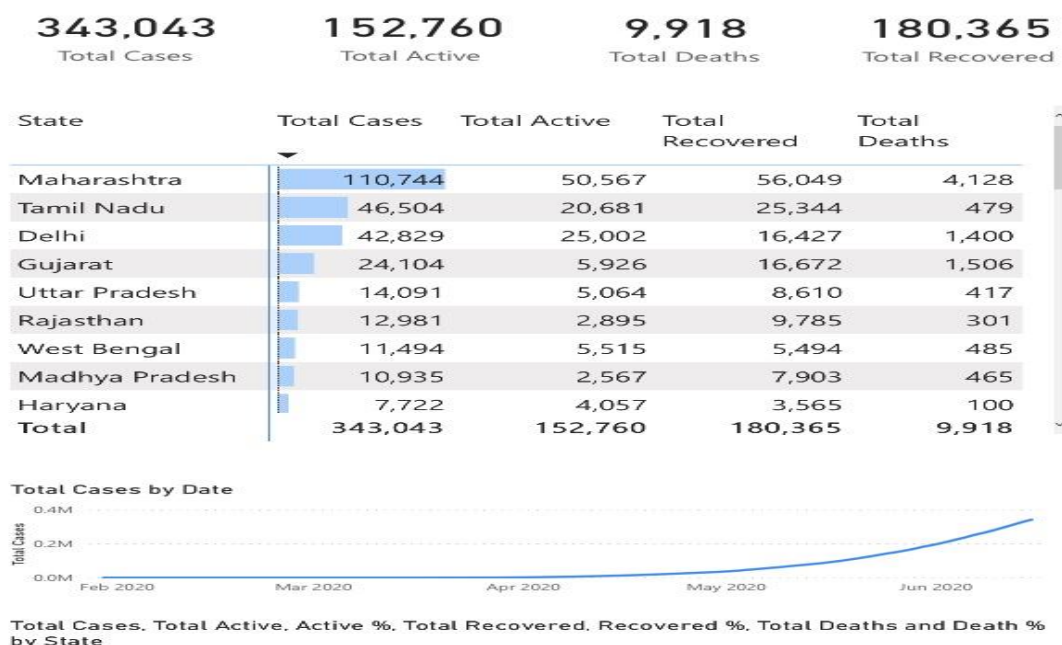
What is Coronavirus?

Before understanding Coronavirus, we must know what is the virus? Virus is the micro small infectious cells present in the living organisms which are transferred from tiny agents which can't be seen through our eyes. The coronavirus is parasitic in nature so these viruses needs a host for their existence. Coronavirus is the family of viruses which are circulated among various range of animals. This deadly virus is similar to viruses which resulted in the deadly diseases like SARS and MERS. SARS – COV 2 causes Covid 19. Basically, this virus is named coronavirus because it looks like “Crown” under microscope. The virus which is currently affecting the people is named as N-COV and it is highly transferable from person to person. Mostly there are around 14-15 types of coronavirus which are generally present in animals are spread among humans and all these viruses show similar symptoms like headache, chills, cough, sore throat and cold. Generally, incubation period of Novel Coronavirus is between 2-14 days. Covid 19 is a respiratory disease in which lungs are badly effected as it invade in lung cells ,due to which Cilia(hair like projection acting as filters to purify the oxygen) are damaged. Elderly people, people suffering from chronic respiratory diseases, diabetics, high blood pressure, heart diseases and cancer patients are highly prone to such infections. The coronavirus is diagnosed with the help of reverse transcriptase polymerase chain reaction (PCR).



The diagram is taken from www.who.int, and it shows the structure of the coronavirus.

It is observed that in around 88% cases fever is the first symptom which was recorded among the infected patients. With the transmission of the virus from person to person this N-COV is changing shapes and till date(16 June 2020) it has adapted 11 different shapes. In order to prevent the widespread of novel coronavirus certain measures like- social distancing, washing hands regularly with soap or alcohol based chemical, covering nose, eyes and mouth. As per record, on 16 June 2020 there were 8118908 globally registered cases and out of which 439204 has been dead as per world meter record. The spread of this deadly virus can be controlled by wearing mask, regularly washing hands with soap or alcohol-based chemicals, maintaining at least 1 m distance from the people and seeking medical help at early stage if facing any symptoms of coronavirus.

India fighting against Covid-19**CORONAVIRUS DATA - STATE WISE TALLY**

For India it is very challenging to prevent the spread of Coronavirus as it has a huge population. The Indian government is fighting proactively against this coronavirus in comparison to other developed countries like-US. But a country like India where only 1% of the GDP is spent over the health sector will also be tough to cope up with this pandemic as-better laboratories, expert medical staff, PP kits ,ventilators and proper infrastructure is needed for isolation of patients.

If we analyze the health conditions than India stands at 120th rank as per the Global Health Index 2019. In keeping in mind the health services the government took appropriate steps by announcing the complete lockdown on 24th March for 21 days when the total reported case in the country where 500 only. Initially, on 22 March 2020, 14 hours Janta curfew was being practiced by the citizens of India in order to show their readiness and willingness to obey the orders of lockdown. Eventually the lockdown has been extended in various phases as the total number of affected people where increasing day by day even after imposing complete social distancing and lock down. No doubt the lockdown was the most needed action but the government has not taken appropriate steps in order to implement lockdown effectively as the government has failed in arranging basic necessities like food, shelter majorly for poor people. The lockdown has been further classified in five phases in which the first phase has continued till 18th May 2020, phase-2 further to 8 June 2020, phase-3 lockdown has been extended to 29th June 2020 and in fourth phase the lockdown will continue till 20th July 2020 and the last stage will be till 10th of August 2020. The government also took up various programmes in order to create awareness among the people regarding the social distancing ,wearing of mask, cleaning of hands and other various precautionary steps. The Indian government has also launched the Aarogya Setu app in order to provide early detection and awareness regarding COVID-19. The total number of corona positive cases has crossed three lakhs even after imposing lock down at initial stage. The below chart shows the total impacted case in India as on 16th June 2020 highlighting the adversely affected states and union territories. On looking the data we can say that the government of India has failed to a large extent in controlling the wide spread of coronavirus. It's not the only government which has taken states for controlling the spread of coronavirus but in rural areas they initiated break taken by the Sarpanch and the Panchayat for closing the village borders in order to restrict the movement of people. India has launched one of the world largest evacuation for bringing back around 5-10 lakh Indian citizens from other nations. This mission was carried out via two modes – airways and waterways. For airlifting “Vande Bharat Mission” will be carried out, this mission is executed by Air India and Air India Express under the Ministry of External Affairs and Ministry of Civil Aviation. Simultaneously “Operation Samudra Setu” will be carried by deploying warships of Indian Navy under Ministry of External Affairs. On arrival the passengers will be segregated, screened and then quarantined in order to ensure the safety of the

citizens. The below table is taken from www.grainmart.in, and it depicts the nine states of India with highest positive cases of Covid-19.

Reasons for widespread of Covid-19 even after lock down in India

India is a and a developing country in which around 62% of the total population is engaged in agriculture and around 92% of people are working in the unorganized sector. In March when coronavirus was spreading at a magnificent rate India was gearing up to tackle this world pandemic with great efforts, even the United Nation and WHO has praised the Indian government or controlling coronavirus in the initial stage but gradually the situation has turned worst for India also. At present India is the fourth most affected country in the world by this Covid -19. Calling with the reasons for widespread of coronavirus even after lockdown in India:

- Improper planning and poor implementation of Lockdown
- Lack of Awareness in public
- Social gatherings
- Migration of Labour
- Lack of equipment's and Laboratory for testing patients
- Authorities fail to examine and quarantine people who have arrived India after spread of Coronavirus
- Irresponsible behaviour of citizens

Impact of Covid-19 on India

Covid-19 has turned out to be very fatal as lakhs of people had died globally. This virus has numerous negative impacts on the environment but we should not neglect the positive aspect also. An effort is made to illustrate various negative impacts as well as the positive impacts of coronavirus in India. The biggest adverse effects of the coronavirus are that the people are losing their lives and they are being locked in their homes to prevent the widespread of Covid-19.

▪ Negative impacts of Covid-19

1. Aviation industry-As per CRISIL (Credit Rating Informative Services of India Ltd) it is estimated that the aviation industry will be losing upon the revenue of around 25,000 crores. The employees of the aviation industry are also suffering as they are not paid timely and they don't have any alternative job to do in such a bad time.
2. LGBT community- In India LGBT is the community that is totally ignored and abandoned by the society so in this pandemic situation the LGBT community and the transgender community is suffering a lot. Most of the term gender on their livelihood by begging so now they are finding it very tough to survive as the government is also not paying much attention to their hardships.
3. Tourism and Hospitality - Tourism and Hospitality sector contributes to around 9.2% of the total India's GDP. Not only this but it provides 8.1% of the total employment to the people. It is also a medium to showcase the Indian culture to the tourist. Due to this Coronavirus mostly all the hotels ,restaurants ,motels and resorts are badly affected and it is estimated that their revenue will be affected in the next 2 to 3 years also.
4. Manufacturing industry - in this scenario where the people were restricted to move out of their homes then all the processes like manufacturing have been badly affected. The availability of labour to the manufacturing units was tough because the labour had migrated to their hometown in order to have food and shelter.
5. Education – In India there are approx 33 crore students who goes to schools and colleges. During lockdown the education has suffered a lot as the final annual exams were cancelled for school students and still no information is provided regarding the exams of college students. No doubt the efforts are made to complete the syllabus by using virtual modes but there are few no.of students who are not financially sound to have internet access.
6. Stock market – The stock market is always expected by various up and downs in the economy due to knock down since it has fallen 5000 below within just four weeks of lockdown. The investors have incurred a loss of around seven lakh crore due to a sudden fall in the Sensex.

7. Automobile Industry - The individual first aims to earn food and shelter so this pandemic will affect the automobile sector as the people might not be having enough resources to buy luxuries item.
 8. Unemployment and poverty- India has been fighting against poverty and unemployment since independence and outbreak of this pandemic has resulted in the retrenchment of no. of employees. Coronavirus has adversely affected the daily wage earners, autorikshaw drivers, small shop owners, etc.
 9. Agriculture- The farmers are not able to get the real value for their yield and they are compelled to sell off their crops at throwaway prices. It was witnessed that few items but disposed off because there were no buyer for that.
 10. Research and development- India has been constantly working upon the research and development in 2019 India has improved its rank from 57th position to 52 position. Due to the closure of laboratory and research sectors the research and development of the country are also adversely affected.
 11. International relations - India is a Peninsular country which is surrounded by other nations from three side. China and Pakistan are the countries which are always leading to disturbance and give rise to the border dispute. India is a highly populated country that is already facing lots of trouble in order to cope up with coronavirus and simultaneously Pakistan and China are creating disturbance on the Indian borders.
 12. Telecom sector- During the lockdown period most of the work was done by using virtual mediums and this was a great challenge to the telecom sector as the total burden on the server has increased. Not only this but limited customer services were provided which can be a reason to effect the brand loyalty and the behaviour of the customer.
 13. Railway- Daily around 23 million people travel using trains. With complete lockdown the Indian railway services had incurred huge losses.
 14. Increase in the cases of domestic violence- Domestic violence is one of the heinous crime. As per NALSA(Nalsar University Of Law) there has been an increase of around 50% in the reported case. Within the two months of lock down there were around 150 cases registered for domestic violence and we should not ignore that there might be some incidents that were not even registered.
 15. Entertainment industry - The entertainment industry contributes to about 30% in the total of India's GDP. The lock down has adversely affected this industry has not a single movie has been released. The entertainment industry employs to lakhs of people but this industry has collapsed. No doubt online web series are being watched by the public but in India the scenario of virtual entertainment is limited to urban and educated audience only. The level of stress has increased among the artist that many as even committed suicide.
 16. Mental stress – The level of mental stress among the people has increased as their regular income is adversely affected and they are finding tough to meet the basic needs.
- **Positive impacts of Covid-19**
1. Improvement in air quality index - If we take the count of the most polluted city in India in Delhi will be at the top. On the day when the lockdown was announced the AQI of Delhi was 144 on 22nd of March 2020, and it has reduced to 54 only in 18 days of lockdown as most of the polluting industries and transportation have stopped.
 2. Self-healing of nature -The interference of human has increased too much in the Mother Nature which has led to massive destruction and exploitation. The period of lock down has provided a time to self introspect the damages which we humans have made to the Mother Nature. In this lock down period it has been reported that the level of global warming has reduced to a great extent and the animals are also living in their real habitat.

3. Family bonding- In this era, where people are connected through social media and they were losing upon their blood relations due to busy schedule. The complete lockdown has provided an opportunity to bond back with the family members and friends.
4. Manufacturing of PPE kits in India- The whole manufacturing sector has been adversely affected by the lockdown but the people have identified the first and opportunity available in this duration as the manufacturers have geared up for sale in order to produce PPE kits. As per the record in order to meet the demand the Indian manufacturers are producing 4.5 lakhs PPE kits daily. This step is not only meeting the requirement but it is also providing a way to earn revenue.
5. Adapting virtual platforms for learning- during lockdown several online platforms were introduced in order to boost the morale and development of the students. Moreover, the various recognised organisation has offered free courses to student.
6. Work from home - No matter firms organisations, schools, colleges and government departments has been totally stopped but the people had chosen an alternative to work from home by using the virtual mode in order to compensate the loss of work
7. Recognition of hard work by Karamcharis- The people who collect garbage is from door to door always been treated in a wrong way but during the lockdown people realised their importance also came forward by praising them for providing their services in such a harsh time.
8. Praising the efforts of police- Police is always a key factor in order to maintain the law and order in the state. The police have played an important role in creating awareness regarding this pandemic. The police personals have selflessly delivered their services in order to safeguard the citizens.
9. Limiting the number of people in marriages – Marriage is a ritual in which generally the girl's parents incur huge expenditure for maintaining their honour and pride. The government has restricted the number of people attending marriages to 50 in order to stop the spread of coronavirus. This step has led to a full stop on the great big fat marriages due to which most of the people were mortgaging their property and taking loans.
10. Global recognition of India as medicine supplier -India is the largest manufacturer of hydroxychloroquine which is used in the treatment of coronavirus. India has supplied this medicine to US, Israel, Bangladesh, Nepal, Bhutan and many other countries.
11. Improvement in health sector -The health sector has improved to a greater extent as the number of ventilators and hospital beds and staff has been trained in order to tackle such dynamic situation in the future.
12. People eliminating non-vegetarian foods from the diet - With the spread of coronavirus most of the people have turned vegetarian and this has led to reduction in the level of slaughtering of animals.
13. People realise their social responsibility towards society- It's not only the government authorities but the people are also coming together in order to support the weaker section of the society by giving their best in order to provide food, medicines, mask and other basic necessities.

Conclusion

The future is uncertain which comprises of several threats and opportunities, coronavirus is one of such threats that have turned the world upside down by leading to the closure of the economy and loss of human lives. It's not the first pandemic which the world is facing but we have also witnessed a pandemic in 1918 where almost 1/3 of the total population was infected by Spanish flu. It is believed that when we humans interact with the natural flow of the environment they can be disastrous incidents also and coronavirus can also be one of such replications. With the incidence of this COVID-19 the government has realised that the health sector should be given equal importance while formulating the budget in order to face fatal conditions like coronavirus in the future. This deadly virus has also proved that if effective measures have been taken at the initial stage for precaution then this situation might not be so worse as it is now. Although the government of India is taking the

best possible measures to prevent the widespread spread of coronavirus but however the number of patients is increasing day by day as approximately 10,000 people are reported positive daily from 15th June onwards.

India is just not fighting with coronavirus but it is also fighting with unemployment and poverty as the government is also concerned for providing food and livelihood to the poor people. Moreover, coronavirus will turn out to be a big hurdle for Indian economy as it was aiming to become 5 trillion economy by 2025. We Indians are hoping that cooperating with the government and maintaining social distancing will surely lead us to a Corona free nations like Tanzania, Fiji, Seychelles, New Zealand, Vatican and Montenegro.

References:

- Bhoring, S. K. (2020). Impact of Coronavirus on Indian Economy. *International Journal for Research in Applied Science and Engineering Technology*, 8(5), 1332-1339. doi:10.22214/ijraset.2020.5212
- Kulkarni, Padmaj, and Manikandan Dhanushkodi. "Novel Coronavirus Severe Acute Respiratory Syndrome-Coronavirus 2 (Coronavirus Disease 2019): We Shall Overcome!" *Indian Journal of Medical and Paediatric Oncology*, vol. 41, no. 2, 2020, p. 107., doi:10.4103/ijmpo.ijmpo_104_20
- Mousa, N. (2020). What behind Coronavirus? How Coronavirus affect the economic growth. *Saudi Journal of Economics and Finance*, 04(04), 145-148. doi:10.36348/sjef.2020.v04i04.002

Covid-19 Challenges and Education in India

Abhay Kumar, Ph.D Research Scholar, Department of Philosophy, Dr. Hari Singh Gour University,
Madhya Pradesh, India

Abstract: In chemical education too much consideration is given to Chemistry and not enough attention to education. A lot many difficulties are experienced by the students in Organic Chemistry. Organic Chemistry is only introduced at the surface level in the secondary classes. The Organic Chemistry formula, nomenclature, curved arrow diagram, mechanization of reaction have been considered the most difficult topic at grade 11. To alleviate the misconception and difficulties in chemistry and to facilitate cognitive development the context based programme and 9 E learning cycles are some innovative teaching methodologies to be inculcated. The researcher and the practicing teacher have developed innovative programmes to germinate the thinking skills. It focuses on the concept of role and particulate nature of a substance. Result of the present paper reveals that it is effective in enhancing students understanding any conceptual chemistry.

Keywords: Organic; chemistry; difficulties; topics and conceptual change.

Introduction

“We have been busy changing the menu in the ship’s restaurant while the ship had been sinking” -Johnstone.¹

The major intention of the chemistry education is to channelize the students in building mental replica of chemical phenomena and to ensure the close congruence of scientifically developed model. The area of chemistry where the students of Senior Secondary School demonstrate huge challenge with respect to building authentic mental model is organic chemistry. For human care adequate knowledge of conceptual understanding of organic chemistry is pre-requisite. Organic chemistry is the key to develop innovative products in the society. It is the foundation for the food flavor, plastics, clothing, tires, fuel, cements, pharmaceuticals and house cleaning agents. It is also significant to the forensic department for investigation. Senior Secondary Chemistry students are expected to have satisfactory understanding of the aspects of Organic Chemistry. Organic Chemistry constitutes 40% of the Chemistry syllabus. Though it looks small but it is important to study Organic Chemistry. A better understanding of Organic Chemistry fosters students to see chemistry in food, medicines, detergent etc. Organic Chemistry is pre-requisite for studying nutrition, bio chemicals, medicine and pharmacy in addition to other fields. Hence students are required to study Organic Chemistry with proper conceptual understanding of the subject.

Students consider Organic Chemistry as a big hindrance to study chemistry at Senior Secondary School level. Organic Chemistry is not only difficult but also hardly mentioned elsewhere. Three-dimensional thinking: microscopic, macroscopic and symbolic domains are vital for the conceptual understanding of Organic Chemistry. If Aspirin tablet is dropped into the test tube, molecules are not perceivable by sense (macroscopic) and hence artistic chemical formula, symbols and equation are drawn to represent the formula of Aspirin (Symbolic). There are several factors which affects the student’s performance like:

1. Poor conceptual foundation.
2. Environmental/social facts/home/school.
3. Teacher’s content knowledge.
4. Student’s preparedness.
5. Large class-rooms.
6. Psychological foundation of the students.

Students are not having clarity about the nature and the connection with three dimensional levels of the substances. Hence students represent the flaw on the basis of chemical phenomena in the Organic Chemistry. The student’s poor performance is liable to the reduced retention capabilities, low motivation, poor academic achievement, inappropriate social group and parental issues. A teacher plays a significant role in the learning process and influences the student’s attitude towards chemistry. Teacher’s behavior affects the student’s performance. Enthusiastic teachers facilitate students to participate in constructive activities, ensure students to feel free and enable them to take responsible action and learn to construct their own knowledge. Organic Chemistry, in a very simple term it is a Chemistry of carbon compounds excluding, oxides, metal carbonyls, metallic carbonyls and other related components. Organic compounds are huge class of compounds. Such compounds are formed by one or more atoms of carbon which are covalently bonded with the atoms of other elements most frequently with nitrogen, hydrogen or oxygen.

Methodology:

Identify the difficult concepts in Organic Chemistry. Design/develop/ facilitate Teaching –Learning in Organic Chemistry. Implement / evaluate the effectiveness.

The present research is conducted in three stages. The stage one is the investigation of chemistry teachers and students. The outcome of the investigation is to identify the key concepts of the topics which include: IUPAC (The International Union of Pure and Applied Chemistry) Nomenclature, Functional group, characteristics of organic compound, reaction types and reaction mechanism.

The stage two is to fabrication the intervention programme. The stage three involves the implementation and investigation of the intervention programme in school. The study is conducted for 12th batch students from 2008 to 2020, and 300 students. The intervention programme is investigated by using three lenses:

1. Participation of Teachers
2. Participation of students
3. Comparison of the experimental group with the control group. (n=110)

The intervention programme is designed by using the findings from stage one and from the secondary source. Ten key elements are used to fabricate the outline of the intervention programme. The animation illustration illustrates the importance of the use of contextual link to create interest among students for teaching organic chemistry. The Teaching-Learning ground is designed for the overall content of the curriculum. The Teaching-Learning methodologies are integrated and fabricated with a specific focus on the key difficult areas/topics.

Result :- Result of the study reveals that the intervention model is an effectual design as per the teacher's opinion. The teacher's are concerned over the non related content of the syllabus which differs from the exam related preparation.

A significantly higher percentage of the study group (72%) has joyful learning experience of Organic Chemistry than the control group (53%) ($t(3) = 8.882, p=0.02$). The students of the study group (51%) find organic chemistry as easy topic to learn for the examination than the control group (39%). The students of the study group are more confident about attempting the questions of organic chemistry and they perform better than the students of the control group in past year examination questions in test conducted for knowing their conceptual understanding. The organic chemistry intervention model is very effective in preparing the students for improving their conceptual understanding, interest and their performance in critical examination.

Conclusion: The result of the present inquiry-based teaching methodology which is designed to the develop the cognitive skills and to relate chemistry to the real life context is effective in addressing some of the difficulties in Teaching-Learning process of Organic Chemistry at Senior Secondary School level. This Teaching-Learning approach is applicable to other core subjects also.

References

- Barreda, A.B. (2018). Assessing the level of awareness on climate change and sustainable development among students of Partido State University, Camarines Sur, Philippines. *The Journal of Sustainability Education*. Retrieved December 13, 2018. from www.susted.com/.../assessing-the-level-ofawareness-on-climate-change-and-sustainab
- Houghton, J.T. (2004). *Global warming-the complete briefing*. Cambridge University Press. 216-241.
- Thote, Prashant. (2020). *Effect of gender difficulties and misconceptions in phase equilibrium in chemistry*. *Journal of Environment and Ecology*, 2249-8125.
- . (2020). *Analysis of awareness among senior secondary school teachers towards value based questions in Chemistry*, *Golden Research Thoughts*, 2231-5064.
- . (2020). *Higher order thinking skills questions: A way to stimulating learning*. *Journal of Research, Extension and Development*, 2249-8125.

Study on the Impact of COVID-19 on the Global Economy**Priyanka Kamboj**, Assistant Professor, Chandigarh Group of Colleges Landran, Mohali, India

Abstract: COVID-19 is the virus originated from China and spread in the whole world causing a serious physical concern. Coronavirus the other name of COVID-19 are the group of viruses that affects the animals as well as human beings. This SARS (severe acute respiratory syndrome) is also an example of coronavirus. However, SARS-CoV-2 is the virus that is the major cause of coronavirus disease. Coronavirus spreads through the tiny droplets of sneeze or cough of the infected person. If these tiny droplets enter the body of non-infected person through mouth, nose or eyes it causes the infection. The main objective of this paper is to study the impact of this outgrowing disease to our economy. The major focus of the paper is on the positive and negative impacts of the coronavirus on the global economy. This paper aims to sight the impact of coronavirus on share market, oil industry, employment, technology, GDP, environment, manufacturing industry etc. This study will help the readers to enhance their knowledge about the effects of coronavirus and the current scenario of our economy and the counter strategies to overcome these prevailing situations.

Keywords: Covid-19; Coronavirus; pandemic outbreak; economy; impact stock market.

Introduction

COVID-19 is the contagious disease that originated from the Wuhan's Huanan Seafood wholesale market. China reported its first death on January 11, 2020. Thailand reported the first case outside China case of coronavirus on January 13, 2020, a woman who arrived from Wuhan. Next case was reported from Japan soon, the many countries reported the disease widespread, Wuhan being the epicenter of the virus. Chinese president Xi Jinping orders –resolute efforts to curb the spread of virus .On 23 January, 2020 W.H.O said that it has yet not become the global health emergency. There was shortage of face masks around the world. Soon Malaysia, Canada and Australia reported their first cases .The symptoms are fever, cough, and pneumonia, shortness of breath, kidney failures and diarrhea. A report suggested that out of 1099 confirmed cases in China, around 16% became severe. The person who came in contact with the infected had to be quarantined for 14 days to confirm whether they are infected or not. Global spread of COVID-19 began in China on 31 December, 2019 and after approximately two months it has killed 4,284 people worldwide. On 30 January, 2020 W.H.O declares the outbreak public health emergency of international concern.

W.H.O states that risk of being infected by COVID-19 is low by most people, but the risk is higher for the one' in close contact with the people who are infected by the virus and spreads more in densely populated areas. The people at major risks are the older adults and one with chronic health conditions, like high blood pressure, lung disease, diabetes or heart disease .Coronavirus is a global challenge that has disrupted the world since the very start of 2020. Major industries have been shut, blocking the ways for export and import, tourism, employment etc. The countries have been on lockdown since the widespread. The best way to prevent the virus is to avoid close contact with infected people and washing or sanitizing your hands regularly. There are 8.93 million approximately confirmed cases of coronavirus out of which 4.42 approximately million are recovered and 468K approximately is reported to be dead (as on 21 June, 2020).

The prevailing situations of economy in the situation of the pandemic clearly states that there is an urgent need of comprehensive techniques to counter the negative impact .The present situation of unemployment as the percentage is increasing because countries are promoting lockdown to avoid the further widespread of the disease. The recession in the economy is quite visible from the downfall of stock market, crashing of oil prices fall in GDP, far fewer flights and shutting of manufacturing sector. Car sales too have fallen sharply. This disease has set off the investment strategies of various potential investors. This research is an exploratory data analysis which includes the quality data, facts and figures. This study will help the readers to enhance their knowledge about the economy in the current scenario of COVID-19 and make decisions that are vital to their business as well as economy.

Research Problem

Coronavirus is a highly disruptive disease that leads to community widespread. It is a pandemic that lead to lockdown which resulted in shutting down the works of various sectors thus lead t the downfall of the economy. This paper aims at studying the positive and negative impacts of this virus on the economy. It also lays down various suggestions to overcome the negative impact of COVID-19. The study will help the readers to acquire the grasp of existing scenario as well as knowing the positive and negative impacts will help them in decision making.

Objectives

- To apprehend the basic information about the global pandemic COVID-19
- To know the facts responsible for the spread of COVID-19
- To study the cause and preventive measures of the disease
- To examine the positive as well as negative impact of COVID-19 on the world economy
- To understand the impact of COVID-19 on different sectors and environment

Research Methodology

Research methodology that used in this study is the exploratory research as; the aim is to explore the facts and figures provided about the pandemic and its impact on the world economy. The research paper is based on the review of literature and the use of secondary data only. The paper aims to enhance the knowledge of the readers using the qualitative and quantitative data about the global pandemic and its effects on various sectors of the economy that will further boost their decision making.

Literature Review

The causes of recession in the economy have been vast but the situation of novel coronavirus has been new to the economy. The facts that led to the recession of economic cycle have been rare to which we have been unacquainted in the past. Following are the studies conducted in the similar situation of recession.

Ozili and Arun (2020): In this paper the author has stated the spread of the novel coronavirus; they also discussed the effect of coronavirus on the fiscal policy, monetary policy and import and export business. They stated causes of recession are because of the increasing days of lockdown. Where not only developing countries are affected but the developed countries too suffered badly because of decisions in monetary and international tourism and travel. It affected the stock market indices.

Annamuthu, Shenbagavadivu and Arthi (2020): In the research study the preventive measures to slow transmission of COVID-19 recommended by W.H.O are explained. The research throws light on the awareness of the general public on the disease coronavirus. They mentioned that they trust the TV channels regarding the information or update passed to them regarding the COVID-19.

Financial Times (2020): IMF i.e. International Monetary fund stated that the recession caused by the novel coronavirus will be similar to the situation of global financial crisis of 2007-08. It also mentioned the recovery from these crisis until 2021.

Monserate and Sanchez-Alcalde (2020): The objective was to study the direct or indirect effects coronavirus on the environment. The author conducted this research through the satellite images to assess the level of chemicals present in the atmosphere after the lockdown. It stated that due to lockdown, the vehicles were not in use, beaches were clean due to non-gathering of humans. There was decrease in transportation but along with the positive there were some negative effects too for example the recycling of waste was prohibited by people infected with coronavirus.

Spread of COVID-19

Spread of SARS-CoV-2 is a contagious virus that can be transmitted through droplet transmission, contact transmission and aerosol transmission.

- Droplet transmission occurs when respiratory droplets produced by an infected person through sneezes is inhaled by the person who is not infected.
- Contact transmission occurs when a person comes in direct contact with the contaminated surfaces and touches nose, mouth or eyes thereafter.
- Aerosol transmission occurs when the virus is let out by the respiratory organs mixes with the air; it is then inhaled by the other people.

Table 1: COVID-19 statistics (as at 23 rd June 2020)			
Countries	Confirmed cases (Total)	Confirmed Deaths (Total)	Recovered (Total)
Global	92,05,514	475454	4,940,302
<u>USA</u>	2,388,226	122,613	1,003,066
<u>Brazil</u>	1,111,349	51,404	594,106
<u>Russia</u>	592,281	8,205	344,413
<u>India</u>	440,686	14,014	248,196
<u>UK</u>	305,287	42,644	N/A
<u>Spain</u>	293,589	28,326	N/A
<u>Peru</u>	257,448	8,225	145,323
<u>Chile</u>	246,966	4,503	205,396
<u>Italy</u>	238,721	34,658	183,423
<u>Iran</u>	207,526	9,744	166,426
<u>Germany</u>	192,118	8,966	175,303
<u>Turkey</u>	188,898	4,973	161,535
<u>Mexico</u>	185,127	22,585	140,117
<u>Pakistan</u>	185,035	3,693	73,473
<u>Saudi Arabia</u>	161,006	1,3074	105,176
<u>France</u>	160,754	29,666	74,614
<u>Bangladesh</u>	115,786	1,506	46,756
Source: Worldometer. Please note that these values are approximates and may vary, as some unconfirmed cases are not reported to the public health authorities.			

FIGURE 1

Since the initial months of the year 2020, USA has been the country with the highest cases of coronavirus. US have the highest cases of infected individuals, followed by Brazil, Russia and India.

The incubation period is the period between the infection and the symptoms appear, it varies from 2-14 days. The imported case occurs when traveler is infected in one particular area but is reported sick in different area. Local transmission is the one when a traveler spreads the virus and the source can be easily traced. Community transfer is the one in which there is no clear source of transmission and neither can it traced.

The infectivity of COVID-19 can be measured using the- **REPRODUCTION NUMBER**: these are the number of infected cases that on an average an infected person will cause in their infectious interval.

For example: $R_0 = 2$, it means the infected person will affect two persons on an average.

There are two important variants of the R_0 i.e. **Basic Reproduction Number**: it means maximum pathogen to infect the non-infected people i.e. the result when infected person gets into the community of people without prior immunity. **Effective Reproduction Number**: it means the immunity of the population with the current vulnerability or prior exposure to vaccination due to similar exposure. The effective R_0 decreases as the course of outbreak move ahead.

Both these variants depend on various factors in addition to the pathogen infectiousness such as:

Environment: It means the climate during the outbreak of virus.

Demographics: Statistics of the population example –gender, age, religion, race, socio-economic status etc. The goal of all the public health care institutions is to bring the R_0 to less than 1 i.e. no infected person.

Preventive measures

The Centers for Diseases Control and Prevention (CDC): The expert body on COVID-19 has laid down the guidelines for general public and healthcare professionals in accordance with the symptoms of virus. They have guided the individuals to look out for the signs and symptoms which a person could be risk at:

SYMPTOMS:

The symptom of fever and lower respiratory illness for example: difficulty in breathing, coughing, been any travel history to Wuhan i.e. the infected area or any kind of close relation with someone suffering from the disease from past 14 days.

Preventive measures:

To avoid direct or indirect contact with the individual suffering with the prescribed symptoms of COVID-19 i.e. pneumonia, common cold for example cough and running nose.

Not to touch body parts like mouth, eyes and nose without the prior sanitizing of hands for at least 20 seconds.

To use alcohol-based hand sanitizer.

Avoid visiting markets especially animal markets.

Impact on the economy

COVID-19 has adversely affected the economy of the world as the economy is facing recession .as suggested by IMF (International Monetary Fund's) the global economy will face a contraction by 3% as countries are on lockdown prohibiting any kind of production, export, import, stock markets etc. IMF further suggested that the global decline has not been in such worse condition since Great Depression of the 1930's. Due to the transmission of virus from contact of humans, the countries have been on lockdown due to avoid the further spread of this disease. 'GREAT LOCKDOWN' it means all the works of an economy comes to halt, including the manufacturing, export and import, sales, aviation industry, rise in unemployment rate. We will discuss the impacts of COVID-19 in detail:

1. Stock Markets: In the first quarter of 2020, the fear of US-Iran war brought us the new situation of coronavirus; a pandemic which according to JPMorgan has pushed the world economy into 12% contraction .this situation brought the, most brutal global collapse of the equity since the Great depression. The following figures give us an overview of the stock market of the world index in comparison to the rising cases of COVID-19. There is a contrast as we can figure out when the number of confirmed cases raises the world index begins to fall, it is after the March that the lockdown is opened for few countries that the world stocks began fluctuating somewhat in a positive way.

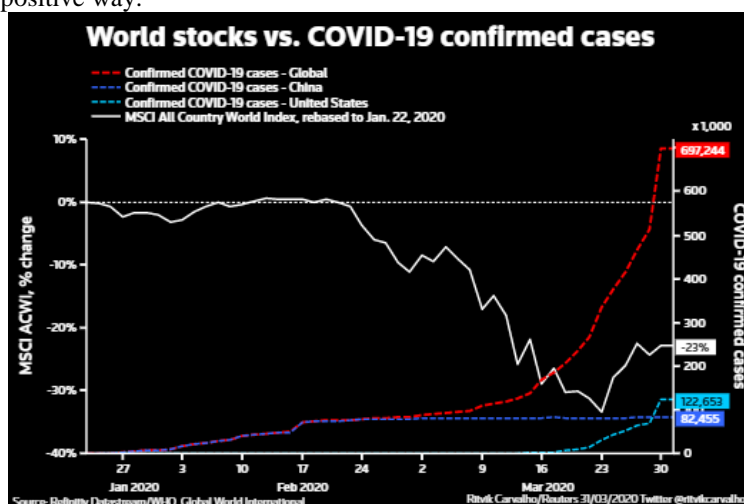


FIGURE 2

(Source of FIGURE 2: World Economic Forum)

This sudden fall is due to fear in investors that COVID-19 might destroy the economic growth of the world. In response to the existing situation, Central banks of countries like United Kingdom have slashed

their interest rates. This slashing was in order to boost the economy by making the borrowing cheaper thus encouraging the spending capacity.

2. Unemployment: Covid-19 has adversely affected the employment rate of the world due to lockdown situation of various sectors. Infection was surging, making sure that cities were on lockdown, the unemployment rate was highly expected to increase. Economists that were polled by Reuters had the forecast claims that would rise to 1 million and some estimated were 4 million as America had the record of 3 million filling of unemployment benefit.

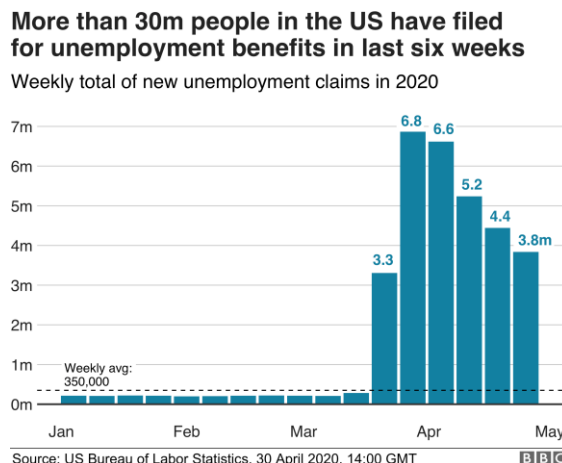


FIGURE 3

(Source of the figure 3: US Bureau of labor statistics)

As we can conclude from the graph the unemployment benefits in US has reached approximately 30 million in the last six weeks (as on 30 April, 2020). The hike could be seen from the end of March going on till the day. According to CEO of CMIE Mahesh Vyas 'the employment has suffered a loss of 114.01 million approx between March and April 2020 and the number of employed being 401 million approx in India, which means out of 4 persons only one is employed. CMIE data portrays the rate of unemployment that increased from 6.75% approx of March 15 to 27.12% approx on May, in India.

3. Oil Industry:

Oil industry till date had never crashed until the crisis of pandemic arrived. There is too much oil but too little demand, too much because the world is producing too much. People are not traveling, they are not using their vehicles, countries are on lockdown, transportation has stopped as the stores are not open for sales, and airlines are too shut resulting in very little demand for oil. This led to a sharp decline in the prices of oil by the Saudi Arabia and the rest of OPEC in the hope of stabilizing prices.

Oil price at 21-year low

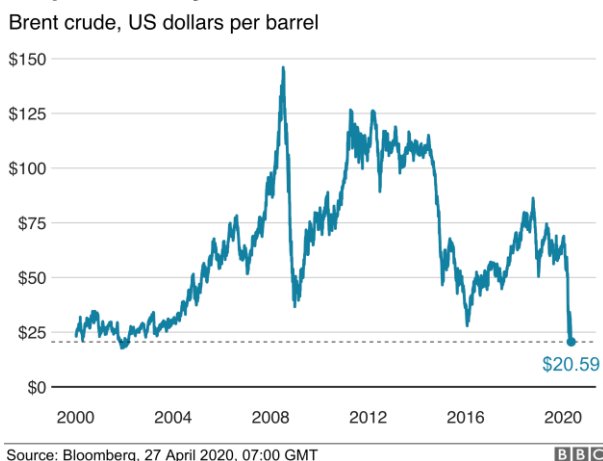


FIGURE 4

During this situation the international benchmark Brent crude saw the steepest fall by 30%, it has dipped below \$20, the lowest that has been in last 18 years. (Source of the figure 4: bbc.com)

4. Aviation Industry:

The International Air Transport Association (IATA) predicted that pandemic outbreak could result \$113 billion of loss to the airlines as very less people would travel on 5 March. Shortly after that US travelling ban was announced. The IATA's chief economist Brian Pearce said to Associated Press that the industry still remains very fragile. He further added that the profits are getting narrower for the airlines as the number of airlines has relatively increased, whereas there are lots of debts, this would result into difficult situation for some airlines.

On March 16, the British Airways told that they will cut the flying capacity in April and May by 74% approx. Other airlines such as Easy Jet and Virgin Atlantic announced their drastic cuts. The travel industries are hit badly and early by the COVID -19 outbreaks.

5. Disruption in Commerce:

Global pandemic has disrupted the pace of commerce in the world. When the economy grows it means more jobs and increased wealth that is calculated by the change in GDP (Gross Domestic Product) or by the number of goods & services produced generally in three or a complete year. But in the situation of novel coronavirus the IMF (International Monetary Fund's) stated that the global economy would shrink by approx 3% in the year 2020. There was shortage of products and other parts from China being the epicenter of the disease initially, which affected other companies around the globe. The manufacturing partner of Apple in China, Foxconn too faced delays in production. Few industries like Nissan and Hyundai had to close their factories temporarily due to non-availability of parts outside China. Italy had shut the most essential factories by March. The pharmaceutical industry too feared the shortage of drugs due to increased lockdown in March which interrupted the production, nearly half of the drugs to US are provided by India. Trade shows, cultural events were all cancelled or postponed due to existing situation.

6. Turn to technology:

With the outspread of COVID-19 the technology has taken a positive turn. The government has urged their employees around the globe to work from their home, as it's not safe outside. Whether the employees are IT personnel's, teachers, students or any other employees, the demand has increased for technology due to companies like Zoom, online shopping and entertainment. The shares of Zoom have increased as people found Zoom application more reliable for the video conference meetings and calls. Along with Zoom the shares of Amazon has too reached new heights in the outspread.

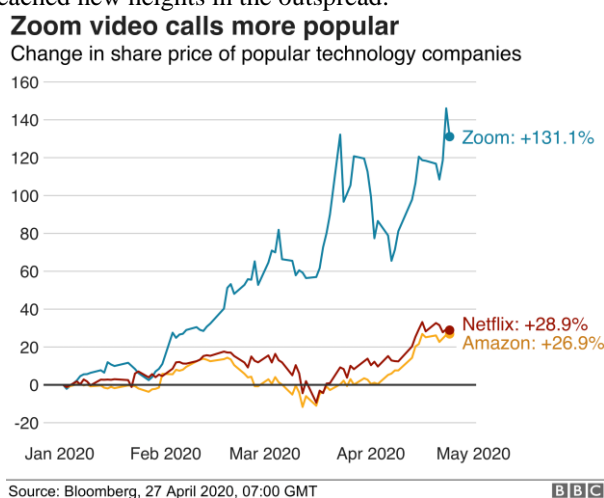


FIGURE 5

(Source of the figure 5: Bloomberg, 27 April, 2020)

From the above figure, we can have a better picture of the rising demand of Zoom, Amazon and Netflix. The shares are at an increasing pace for each one of them. This shows how technology has turned to be a source of entertainment and a life savior for the companies to carry on with their daily tasks.

7. Production Sector:

China had been among the leading country in the production sector, but since the outspread of COVID-19, the industrial production, investment and the sales sector have fallen in the first quarter of the year 2020. The situation has affected the companies like JCB (industrial equipment maker) and Nissan (car manufacturer).the production fell due to the outspread of disease which kept people inside their homes. China being the epicenter of the disease had to suffer the loss of shutting down the production sector in the year 2019. From the figure below; we can see the decline in all the production units of China.

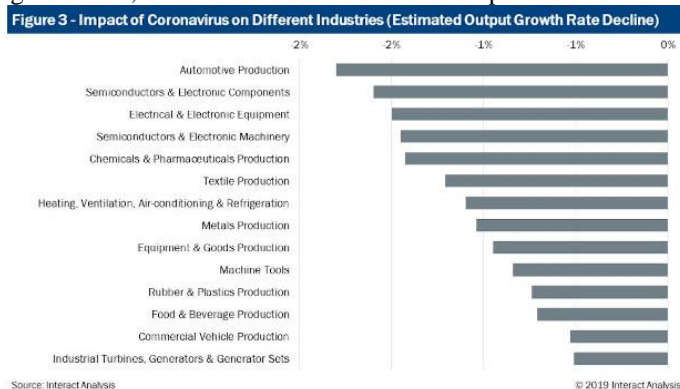


FIGURE 6

(Source of the figure 6: Interact analysis)

The impact caused to the China's manufacturing units is short-term, medium term and long term, the short term impact being relatively large among the others. When the factories and the other production lines work come to halt, the delay in resumption will cause the loss in production as well as supply risk.

8. Impact on environment:

Amid the outspread of coronavirus in the countries, the environment too had a break as every other work came to rest. The countries have put strict lockdown, the major industrial sectors, transportation etc. all have been brought to halt. The countries have registered an impressive decline in pollution.

Satellite images show pollution clear amid lockdown
Nitrogen dioxide levels in the lower atmosphere

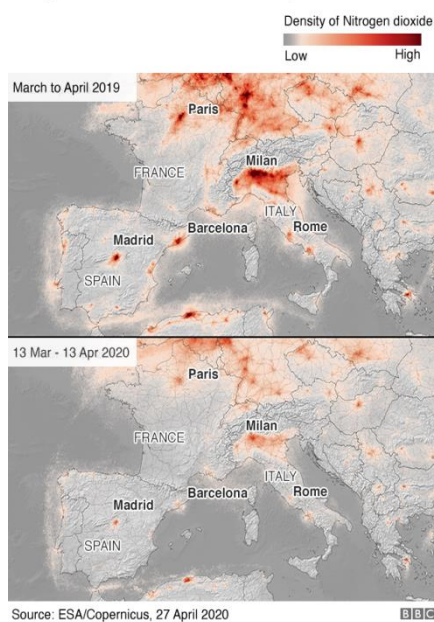


FIGURE 7

(Source of the figure 7: ESA/Copernicus)

From the above image of April 2020 the difference in the level of nitrogen dioxide can be drawn. There is fall in the level of this harmful gas as the countries are on lockdown and there is no use of private as well as public vehicles. The production units were too shut which added to the fall in the level of warm and air pollution. Similar trend can be detected across various other nations like India, China where the measures of lockdown were strict. (Source of data: bbc.com)

Conclusion

SARS-CoV-2 or COVID-19 outspread from the epicenter China's Wuhan has put many lives to stakes. As the virus is transmitted from the contact of the individuals it is highly risky to move out of their respective houses. The countries affected from the disease have been on the lockdown since putting the economy at stake. The production units have suffered huge losses; there has been no trade due to very little demand and no import and export facility. Governments of nations affected with the disease have implied strict guidelines of the lockdown to control the outspread. W.H.O declared the outbreak as the public health emergency of international concern. Since then strict regulations are being followed, the risk being most in the individuals with low immunity and one's with close contact to the infected. The people who are at the major risk of getting the disease are ones with the health conditions like high blood pressure, lung disease, diabetes or heart disease. Since the very start of the year 2020 COVID-19 has been a global challenge posing threat to the financial stabilities of the nations. Nations needs to unite in order to fight this deadly disease and safeguard their people and economy. It is a fight where people need to support each other through the fight against coronavirus.

References

- Adhikari et al. (2020). *Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus diseases (COVID-19) during the outbreak period: a scooping review.*
- Dormalen et al. (2020). *Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1.*
- Eisenburg J. (2020). *R0: How scientists quantify the intensity of an outbreak like coronavirus and predict the pandemic's spread.*
- Ozli P. and Arun. (2020). *Spillover of COVID-19: Impact on the Global Economy.*